The Builder.

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Architects' Drawings.

A CASE, fully reported in our last issue, in which an architect was compelled by the Court to hand over his drawings and specification to his client, furnishes the latest instance of the application of the ill-starred precedent of "Ebdy *v.* M'Gowan," which for the present is held by judges to decide the law as to the ownership of an architect's drawings, and to compel him, contrary to reason, equity, and commonsense, to hand them over to his client if the client demands them. In the case referred to the learned judge refused even to listen to the evidence of architects who were there as witnesses to support the defendant's claim. And of course, according to our wonderful system of English law, whereby a case is decided not on the consideration of its own merits but on the consideration of what was the ruling of some other judge in some previous case—insomuch that, as an eminent judge declared on a celebrated occasion, "he did not sit to administer justice but to administer the law"—a judge will naturally hold that he has no other course than to give a judgment according to the existing precedent. If, however, the judge in this case had had the whole argument before him—if he had been willing to hear what the witnesses for the defence had to say—he might have realised, what lawyers in general do not seem to be aware of, that "Ebdy *v.* M'Gowan" only covers one half of the field; that it was not on all-fours with the case he was trying, and therefore was not rightly applicable as a precedent. "Ebdy *v.* M'Gowan" was one of those cases in which the building was not carried out; only the drawings were made. Professional custom in such a case has undoubtedly sanctioned the handing over the drawings to the client, on the ground apparently that otherwise the client gets nothing for his money. Admitting that for the moment (we will return to the point just now), it is equally certain that professional custom is that in the ordinary case, where a building has been carried out from an architect's drawings, the drawings are retained by the architect. It is very seldom indeed that they are even asked for by the client; the case heard last week is quite exceptional. If the witnesses for the defence had been heard, this professional custom would have been established; and the law, to do it justice, has generally attached some weight to evidence of professional custom. But the judge refused to hear any evidence, and thereby lost the opportunity of supplying a new precedent from his own ruling, in a case which, as we have pointed out, is different in its circumstances from that of Ebdy *v.* M'Gowan. "This was looked for at his hand, and this was baulked."

The whole difficulty arises from the fact that judges and lawyers generally apparently cannot be got to understand what an architect is and what he is really paid for. He is *not* paid for making drawings; drawings are not architecture; he is paid for devising and carrying out a building, and, in cases where the building is not merely utilitarian, for producing artistic expression in architectural form. He cannot, like a sculptor, produce his work with his own hands; a building has to be carried out by many hands; and his drawings are the means of conveying his idea to the minds of those who are to carry it out. In principle, the client has nothing whatever to do with them; they are simply the architect's tools. There are even circumstances in which they may be dispensed with altogether. Pugin used in some instances to carry out a church without any formal drawings; he always employed the same builder, who understood his slight sketches. There are architects who hardly make any details in the office; who sketch them on a board or on a wall at the building. There are other architects, very clever men too, who affirm that the production of designs by drawings has taken the life out of architecture. We do not agree with them, or at least we say that their position is an impossible one for the present day, because the intricate requirements of large modern buildings cannot be adequately provided without considering them on a carefully drawn-out plan first. But the fact that there are able architects who hold this view should go to show, at least, that drawings are not really what an architect is engaged for. The lawyers have got hold of the subject entirely the wrong end first, but apparently nothing will

persuade them of it. In conversation with a solicitor in regard to this very case, we said, as an illustration, that you might just as well demand of a sculptor who had been commissioned to produce a statue, that he should hand over also whatever models or clay sketches he had made in the process of working out his conception. But the illustration was thrown away; our legal friend replied that if such a question came into court, he would probably have to give them up. Of course, after that, argument is useless. People who can say such a thing do not understand what art is, nor what is the position of an artist. But if such a judgment as that would not impossibly be given in an English court of law, we are well assured of one thing—it would never be given in a French court. In France the position and rights of the artist would be understood; in England they are not.

Apart from the illogical view of an architect's function which is taken by the law, the injury to him in demanding the handing over of his drawings is or may be a very grave and serious one. He has no guarantee that his ideas, which are represented by his drawings, will not be handed over in turn to another and perhaps quite inferior architect to make use of, or be made use of by the client himself to act as his own architect in carrying out other buildings. It leaves him, as the defendant's counsel truly said, "in a perfectly hopeless position; and if he is attacked at any time he is unable to protect himself." The same with the specification. The specification for a large building is a document summing up a great deal of special experience and special knowledge. The client pays for the application of that experience and knowledge in carrying out the particular building which he wishes to have erected, but for nothing more; he does not pay for having that experience and knowledge put into his own hands in perpetuity, to make what use he likes of it.

There is no doubt, however, that the difficulty and misunderstanding has been increased, to lawyers, by the custom which has been tacitly admitted by the profession in general, of giving up the drawings when the building is not carried out. As we said, that has no doubt been acquiesced in from a feeling that if plans and specification are supposed to represent half the architect's usual charge of 5 per cent. on the cost of the whole building, the client must have something for his money when the building is not carried out. In our opinion, the architectural profession has made a great mistake in admitting that custom. The client, as we said, comes to the architect to carry out a building, not (essentially) to make drawings of it. If, having given an architect a commission to carry out a building, he changes his mind, it is his own fault for not knowing his own mind. The reasonable and logical position for the architect to take up would be to say—"I have expended a great deal of time and thought in preparing the drawings for this building, which you have now abandoned; you must pay a reasonable charge for having wasted my time and thought to no purpose." The charge in that case need not necessarily be the orthodox 2½ per cent. which is supposed to represent drawings and specification; it would be a charge based on circumstances, on the estimated value of the time and thought wasted; and even if the architect got rather less than what is usually charged for a building that is abandoned, his position would be a far better as well as a more logical one. He would at all events not be giving away the work of his brain at half-price for the client to make what use he pleased of it, which is the situation at present. And on the same grounds, if a man came to an architect and said "I want plans and designs of a building of such a nature" (describing its character and purpose) "but I do not mean to build anything at present, only I want to have the plans"; the reply we would give in such a case, and which we would recommend every architect to give, would be—"I should be most happy to carry out such a building for you whenever you have made up your mind; but I decline to hand over to you plans of mine to carry out as you please; my business is to produce buildings, not to make drawings for other people to make use of." If a few architects would have the spirit and independence to assume that position, it would do more than anything else to get rid of the mistaken ideas of the lawyers and of some clients, that the client pays for drawings and has a right to claim them.

But however mistaken the practice of the profession may have been in the case in which buildings are designed but not carried out, there can be no question that in that large majority of cases in which they are carried out, professional custom has always ruled that the drawings are the architect's—that they are his tools of trade, and that the client has nothing to do with them whatever; that this is the verdict equally of justice and commonsense; and that the law, based on a precedent which is at best only a one-sided one, is most unjust and injurious, and indeed almost insulting to the architect. He is told, indeed, that he may make it a provision in his contract with the client that the drawings are to remain his property. But, in the first place, to assume the necessity of making such a provision is to give up the whole principle we are contending for; and, in the second place, to make such a proviso in words is simply paving the way for discord. Do we not know perfectly well that in every case where an architect has a contentious and exacting client (and how many such clients there are architects know to their cost), the mere introduction of such a clause would be an immediate suggestion to the client to oppose it and to make it a bone of contention? And why should the onus be put upon the the architect of making a special contract to secure what ought to be his by right and reason?

We are not making these remarks with any special reference to the case which has just been decided; we know nothing of either party to it, and have no personal concern whatever in regard to it. It is the principle on which it has been decided that we complain of; the mischief leading and unfair precedent that has been established by law. We must have "Ebdy *v.* M'Gowan" either reversed or at all events confined in its operation to the class of cases which it really covers. And in our opinion the newly-constituted "Board of Professional Defence" of the Institute of Architects ought to take the question up seriously, and, if judges and counsel are deaf to them, approach Parliament with a view to procure an alteration of the law, which as it stands not only involves a gross injustice to architects, but proceeds upon a totally wrong assumption as to what architecture is and what is the function of an architect. If the Board of Defence cannot deal with such a matter as that, we cannot see what was the use of its formation. And we may add that anyone who wishes to bring the subject before an authoritative tribunal may rely on any assistance which could be given him by the evidence of the editor of this journal, whose opinion on the *rationale* of such a subject may, we venture to think, be supposed to count for something—even with lawyers.

RURAL BUILDING BY-LAWS.

THE agitation about the administration of the Building By-laws, which may be said to have commenced with the case of Mr. Till, at Eynsford, has at last taken the practical form of a deputation to the President of the Local Government Board, very influentially attended.

The objections urged by the deputation were that the by-laws governing the building of cottages were enforced by those having insufficient knowledge, and (which is more serious) a personal interest in conflict with some of the persons undertaking the building of cottages, as well as an inclination to magnify their office by enforcing by-laws unsuited to the locality in a vexatious manner. The root of the evil seems to be that, by section 276 of the Public Health Act, 1875, the option is given to the Rural District Councils in their discretion to apply the by-laws suitable to the urban districts to the rural districts. The reply of the President of the Local Government Board was highly sympathetic, but how far was it practical? The department has framed model by-laws for both urban and rural districts, and with those by-laws, if applied in the districts for which they were intended, we understand no cause of complaint to arise. The President stated, moreover, that the Local Government Board exerted its powers in correspondence to urge the local authorities to satisfy themselves that the by-laws were suitable to the districts in which they were to be applied, but that they could go no further, and that the Department was not responsible for the constitution of the local authorities. This reasoning will hardly satisfy those who have this matter at heart. It is common knowledge that those who constitute the local authorities are not persons who ought to wield the unlimited powers of interference and obstruction conferred upon them by the law as it at present stands, even apart from the question that in many districts the councils are constituted

of persons having a direct interest in building schemes themselves, either as builders or as persons whose favourite investment is cottage property. The question to be answered is, how comes it that those responsible for the legislation in reference to local government have given bodies so constituted an unlimited discretion to apply by-laws to districts in which some of them are not appropriate? That is the point upon which the deputation were entitled to a more definite reply, and to an assurance that the Government would support an endeavour to obtain a reform of the law.

The æsthetic side of the question to most landlords and to all lovers of our countrysides, is more important than the financial aspect. It is only necessary to regard the cottages erected by the district councils themselves to have some idea what the application of urban by-laws is doing for the country. In some absolutely pastoral districts are now to be seen rows of cottages suitable only to congested manufacturing districts. The cottagers are consequently herded together with no paving and with little contiguous back yards, and this leads, moreover, to serious danger in rural districts in time of epidemics. Where segregation is impossible, and where hospital accommodation is limited, as it always is in rural districts, these blocks of so-called sanitary dwellings become a hotbed for infection. We think that a case has been made out for legislation on this question. The Local Government Board may be unable to control the action of the urban district councils, but it certainly should have authority to prevent them wielding inappropriate powers to the disadvantage of the rural community.

As Mr. Long observed in his reply, Sir W. Grantham seemed to complain not so much of the By-laws themselves as of the persons by whom they were left to be enforced. This is a complaint which applies to other than what are properly "Rural" districts. Any one who has studied, as we have, the various Reports made by medical inspectors to the Local Government Board in regard to the sanitary condition of Urban Districts, will have come again and again upon the complaint of the inefficiency of local sanitary and building inspectors, coupled with (and to a great extent explained by) the utter inadequacy of the salaries offered or paid. If building in rural districts is to be subject to official supervision, certainly it is a matter for serious complaint if the officials themselves are ignorant and inefficient. But we do not feel at all sure that the ignorance and inefficiency are all on one side. Sir William Grantham complains bitterly of the obstacles put in his way of building cottages as he pleased, and with such construction as he thought sufficient. But some of Sir W. Grantham's cottage plans have been published in magazines that have taken up the subject as a popular one; and we should say that they showed that the gentleman who devised them was very much in want of trained official supervision. They appeared to us to be ridiculous both as drawings and as plans, and we could feel no surprise that an official should say that he could not understand them. He may have been a very incompetent official; be that as it may, a competent one would surely have equally disapproved of them. That landlords should be able to build cottages in a cheap manner is desirable, rather than that they should find it impossible economically to build them at all; but cottages of cheap materials require good planning as well as any others; and good planning is not a thing that "comes by nature," as Dogberry said of reading and writing.

The Model By-laws of the Local Government Board include a great many provisions which in their nature cannot apply to cottage-building in rural districts; but those which can so apply are not really so drastic or absurd as is represented. The practical prohibition of thatching is unnecessary for isolated cottages, and thatch is both a warm and a picturesque roof covering, and quite a suitable one for such buildings. In regard to the walls, the provision for the employment of "brick, stone, or other hard and incombustible materials," does not exclude, for example, cement slab cottages. And when the By-laws allow timber-framing only with the proviso that there shall be 4½-in. brickwork at the back of it, is that so unreasonable? Any one who has ever stayed, in winter, in a country cottage with the walls formed of timber-framing with lath and plaster between, will probably be able to testify that it makes a remarkably cold abode. The provision, again, of a layer of concrete over the site, and of damp-preventing courses, is only a provision for things without which a cottage cannot be really healthy to live in.

The valid objection is to the imposition of hard-and-fast rules which may exclude constructions that are really quite adequate but do not come within the wording of the By-laws. Proposals for cottage construction should be judged on their merits, not on the wording of By-laws framed within too narrow limits. And if official authority is to be exercised, steps should be taken to ensure the appointment of officials who are competent to act. But we are by no means disposed to think that improvement would necessarily result from freeing well-meaning landlords from all official control, and allowing each one to build as he pleases. Well-meaning people sometimes make serious mistakes. And it is doubtful whether it would be a real kindness to rural tenantry to leave landlords to build cottages as they please, on the plea that (for economical reasons) they must have this or nothing. There are two sides to the question; and just at present it seems to be entirely the landlords' side which is evoking public sympathy. Leave us to build as we like, they say, and we will provide our tenants with homes. But will they be healthy homes? And are the landlords always safe, or indeed entirely disinterested judges on that point?

THE SURVEYORS' INSTITUTION.—The Council gold medal has been awarded to Mr. John Smith Hill, B.A., B.Sc.Lond. (Associate), for the best paper read by a member of the Institution during the session 1903-4.

RESTORATION OF THE PARISH CHURCH, PORTSMOUTH.—The restoration of the Church of St. Thomas à Becket, at Portsmouth, has now been completed, and the building was re-opened on the 8th inst. The work has been carried out under the supervision of Mr. T. G. Jackson, R.A.

DRAINS AND SEWERS.

TWO most important decisions have been given by the Court of Appeal under the Public Health Acts on the ever-green question of drain or sewer. By the Public Health Act, 1875, section 4, "Drain" is defined as "any drain of and used for the drainage of one building only or premises within the same curtilage, and made merely for the purpose of communicating therefrom with a cesspool . . : or with a sewer into which the drainage of two or more buildings or premises occupied by different persons is conveyed." "Sewer" includes "sewers and drains of every description except drains to which the word 'drain' interpreted as aforesaid applies. . . ."

We have already in these columns drawn attention to the uncertainty which has been created in the law by this schoolboy method of defining a word by a repetition of the same word, and some of the cases under this section were set out by us in an article in our issue of June 27, 1903, in which it was shown that the liability could be shifted from the shoulders of the private individual and placed on the urban authority, even by an illicit connexion by a neighbouring owner with the drains of another house.

The present decisions deal, however, with the Public Health Acts Amendment Act of 1890, which has been the cause of considerable litigation. Section 19 of this Act has varied the above definition as follows:—"Where two or more houses belonging to different owners are connected with a public sewer by a single private drain, an application may be made under section 41 of the Public Health Act, 1875, and the local authority may recover any expenses incurred by them in executing any works under the powers conferred on them by that section from the owners of the houses." These powers are the abatement of nuisances arising from drains. Subsection 3 provides that "For the purposes of this section the expression 'drain' includes a drain used for the drainage of more than one building." The two cases now decided by the Court of Appeal—Thompson *v.* Mayor of Eccles and Hardicke *v.* Friern Barnet Urban District Council—arose on practically similar facts. A certain number of houses or blocks of houses, some of them in different ownership, were drained into a drain which was laid in private ground, and ran along the houses, and which carried their drainage into a main sewer. In the first case the owner of seven houses was being sued by the corporation in respect of work carried out by them in abating a nuisance from the drainage of one of his houses. In the second case the corporation were being sued by the owner of four houses to recover the expenses of work done at the request of the corporation. A great number of contradictory cases were cited to the court, and now we have at last a clear pronouncement of the law by the Court of Appeal, which comes to this, that where there is a drain laid in private property receiving the drainage of two or more houses belonging to different owners, not being a drain which any

member of the public has the right to use by connecting it with the drain from his own house, that is a single private drain within the section. This decision approves two decisions that have recently been decided by Divisional Courts—Self *v.* Hove Commissioners (1895), and Bradford *v.* Mayor of Eastbourne (1896), but of course leaves the anomaly created by the Legislature that when the houses are in the same ownership, but are separate buildings, then a similar drain is repairable by the urban authority—as in the case of Travis *v.* Uttley (1894).

In the second case a further point was raised that all the owners of the private drain should be served with notice and the expenses apportioned, but the court disposed of this contention, since in fact the nuisance had been localised by the urban authority as being upon the plaintiff's premises.

NOTES.

London Squares and Enclosures. THE Bill drafted by the London County Council for the prohibition of building on the gardens of squares and other specified lands in the administrative county of London relates to what we find are as many as 411 enclosures and spaces, which are bounded by roadways and occupied premises. The comprehensive scope of the measure may be estimated from the fact that it ranges from such open areas as that in front of the houses of Audley-square at the end of South Audley-street, Mayfair, to the gardens of all squares, crescents, terraces, and so on, and all such secluded enclosures as the gardens of our Inns of Court and the pleasure-grounds of Carlton-gardens at the rear of Pall Mall. The freehold of many of the railed-in enclosures appertains to the Bedford, Westminster, Lord Howard de Walden (formerly Portland), Portman, and other opulent estates. By way of inducing private owners to agree to the prohibition of building in the future, the Council offer to secure legislative exemption of the ground from any scheme of taxation in respect of land and site values, and, in addition, to take over lands into their own control and maintenance as "open spaces," or as may be otherwise agreed upon between them. The Bill will provide means for continuing an owner in his existing rights in the event of an equivalent area being set apart and brought within the operation of the intended Act. In a few instances the lands are automatically protected by the circumstance that it is well-nigh impossible to build upon them and at the same time to satisfy the requirements of existing statutory regulations; in some others the tenants of the surrounding houses possess under covenant certain rights as to user and enjoyment which enable them collectively to withstand encroachment upon the part of their landlords.

Railway Rates. A STATEMENT was made some weeks back to the effect that an advance of 1d. per ton had been made by the railway companies on the rates for conveyance of all coal brought into London by rail. This provoked a perfect storm of indignant protest—out of all proportion to the amount of the impost. Consumers would suffer, the coasting trade would benefit (for coal would come by sea instead of by rail), and other far-reaching results were predicted. The mere mention of advances in railway rates affects some people in the same way as a red rag does a bull. It is the same with the word "foreign" when railway charges are under consideration. At a great meeting once held in the City to denounce the enormities of the railway companies, a printed form was produced headed "past foreign overcharges," which was held to prove that surreptitious allowances were being made in respect of foreign traffic. But, as a matter of fact, the objectionable document merely related to disputed charges on traffic from other English lines; for each railway company alludes to traffic from other lines as "foreign" (their own being "local"). We now notice, from an announcement in an official railway journal, that the 1d. per ton advance on coal is confined to five collieries only, and that the quantity of coal sent from these pits to London is very small. So much for this particular railway rates scare.

Ventilation of Railway Carriages. IN spite of various ingenious devices which have been introduced, the ventilation of ordinary railway carriages is best attained by the open window policy. This is extremely efficacious and generally quite comfortable for the happy person who sits next to the window with his back to the engine. But the occupant of the corresponding seat at the other end of the carriage often gets a draught, reflected from the opposite wall, down the back of his neck, and passengers facing the open window receive a strong blast in their faces. Thus it will be seen that the system results in the smallest benefit to the greatest number. On some Continental railways an attempt has been made to deal with the problem by providing a loose board which can be fitted into the window sash, so as to project at right angles from the outside of the carriage, and thus shield the window opening in some measure from the draught created by the rapid motion of the train. It has been suggested that a similar arrangement might be applied with advantage to all railway carriages of the old-fashioned type in this country. Unfortunately, there are practical objections to the employment of such a device. In the first place, it would be necessary to make the wind deflector a permanent fitting, and to fix one on each side of the window for use in either direction of the train. Then the deflectors would have to be hinged and provided with catches to hold them in the required position, and they would have to be provided with other catches to hold them flat against the outside of the carriage when not in use. Further, unless the width provided were at least from 6 in. to a foot, the maximum benefit would not be derived, and a width of even 6 in. would mean that the deflector, when folded back, must cover a portion of the side window, blocking out light and preventing its occupant from enjoying an unimpeded view of the external scenery. Altogether we are not certain that the contrivance would be generally appreciated by the public, especially in view of the increasing adoption of corridor carriages on long distance train services.

Hydrodynamics and Magnetism. THE paper on "Hydrodynamical and Electro-magnetic" experiments, by Professors Hele-Shaw and Hay, which was read this week to the Institution of Electrical Engineers, is not only of great scientific interest, but is also of considerable value to the designers of dynamos. The late Sir G. G. Stokes pointed out in 1898 that the lines of flow in an ideally perfect fluid which had no viscosity were identical with those of a very viscous fluid, provided that both fluids moved between parallel plates at a short distance apart. Professors Hele-Shaw and Hay were able to map these lines by forcing clear glycerine, into which had been injected thin streams of glycerine coloured with an aniline dye, between parallel glass plates very near together, in which obstacles of various shapes could be placed. When the motion had become steady they photographed the slides, the coloured streamlets of glycerine representing the direction of the flow of the molecules of the liquid. In a paper which they published in the Transactions of the Royal Society three years ago they showed that their experimental results were in exact accordance with the predictions of the theory. Now Kelvin and Clerk Maxwell showed many years ago that the mathematical solution for the lines of flow in a liquid was the same as the solution of the analogous problem for the "lines of force" in magnetism. As a matter of fact, also, the solution applies equally well to Faraday's "tubes of force" in connexion with electrified pith balls and to the "lines of flow" of electric current in metal sheets. As the authors have obtained the hydrodynamical solution, they have therefore solved also the electrical and magnetic problems. They are thus able in their paper to show electricians how the magnetic lines of force in dynamos cross the air-gap between the field magnet poles and the armature, and to give them useful formulæ and tables. Some of their results have been anticipated by Mr. F. W. Carter, who, by applying the mathematical method of conjugate functions, developed mainly by German mathematicians, obtained complete solutions of the magnetic problems in those cases where the field poles and the slots in the armature were rectangular in shape. The experimental method devised by the authors of the paper is a triumph of ingenuity, and, if necessary, it could be applied to the study of problems which have not yet been attacked mathematically.

Hawksmoor's Grave, Shenley. IN the course of some renovation works that are being carried out under the superintendence of Messrs. Hopkins & Walker at the parish church of Shenley, near St. Albans, the tomb of Nicholas Hawksmoor has been repaired. The brickwork, which rises to about 18 in. above

the ground, is set in order, and the crack across the tombstone has been cemented. The grave lies beneath a yew tree at the east end of the church. Hawksmoor died, aged seventy-five years, in his house at Millbank, on March 25, 1736, a few months after he had completed the two towers of Westminster Abbey—on which it was intended to erect spires 140 ft. high. He had been appointed surveyor-general to the fabric after Wren's death in 1723, and N. Blackerby, his son-in-law, records that he made "a noble design for repairing the west end of Westminster Abbey." Hawksmoor entered Wren's service as a "domestic clerk," or assistant, when eighteen years old; in July, 1735, he was deputy-surveyor, and during the last few months of his life is variously described as "surveyor-general" and "principal surveyor of His Majesty's works." After Gibbs's resignation he was appointed in January, 1716, as first surveyor to the Commissioners, in conjunction with J. James, for the building of the new churches in London; ten years afterwards he became deputy-comptroller under Vanbrugh, who died in 1726. As a skilful mathematician and geometrician he emulated the attainments of his first master. He was, besides, an accomplished draughtsman, and possessed an uncommon knowledge of architectural history and literature.

St. Paul's Chapel, Great Portland-street, W.

THE trustees of St. Paul's Chapel, Great Portland-street, and St. Peter's, Vere-street, Oxford-street, known as the Marylebone Chapels, have drafted a Bill to provide for the demolition of the first-named chapel, and the vesting of the site in the Ecclesiastical Commissioners, together with a transfer of all present funds and securities held by the trustees, and the proceeds of the sale of the site and materials, to the Commissioners. The chapel was built upon the site of Marylebone basin which supplied that part of the town with water, in 1760-6, at a cost of 5,000*l*., from plans and designs after the Classical style, by S. Leadbeater (or Leadbetter). Originally called Portland Chapel, the building was consecrated as St. Paul's on December 31, 1831. The organ, 1879, is by Hill. In our number of December 1, 1894, we published an illustration of the pulpit, constructed in 1892 by Messrs. Shuffrey & Co., of Welbeck-street, from a design by Mr. Paul Waterhouse—the work being of fumigated oak, and the pulpit having in five of its six sides inlaid panels of ebony, box, and walnut wood, decorated with cartouches bearing the five sacred names.

Some Views in Italy.

UNDER the general title "Italy and her Alpine Walls," Mr. Wallace Rimington exhibits at the Fine Art Society a collection of water-colours the special note of which is the contrast between the beauty of the scenes and cities of the Italian plains and the grandeur of the mountains which form the barrier between Italy and the north. This is rather a new way of regarding the subject; and some of the rugged wintry scenes on the Simplon certainly present an effective contrast with the garden-like scenery of many of the other drawings. On former occasions we have thought Mr. Rimington's style in landscape-painting somewhat mannered and conventional; there is less of this defect now, more of freedom and variety; but even now we think the best of all the works in this collection are not the more extensive and more highly finished views, but the few sketches, in a much broader style, of bits of Alpine landscape—"An Alpine Garden" (19), "An Alpine Stream" (36), "An Alpine Meadow" (78), and one or two others. These few drawings form a class apart, and are different from the others and seem produced under a different influence, and we like them best of all. But there are some fine and most interesting views among the others: "From Perugia" (64), with its plain little church and campanile backed by an extended landscape; "A City of Towers—Vercelli" (26); "Assisi" (40), with its ramparts in long perspective; "On the way to Italy" (48) a view from the Splugen; "One of the Gates of Italy—Gondo" (58) an exceedingly striking piece of what may be called natural composition; "In the Engadine" (96), and "A Town of the Adriatic Lagoons" (101). This last the artist describes as "a miniature Venice unknown to the travelling world. It lies in the midst of lagoons larger than those of the far distant mother city, with canals, bridges, palaces and campanili unspoilt by the hand of the restorer. It is approached by a narrow causeway eight miles long, and is a painter's paradise." Mr. Rimington will not give its name, lest it should get popularised and spoiled; and he is quite right. The drawing is charming; one of the best and most interesting in the collection.

Drawings by Mr. Moffat Lindner.

AT Mr. Dunthorne's Gallery there is a collection of water-colour sketches of Venice (chiefly) by Mr. Moffat Lindner, whom we have hitherto been familiar with mostly as a painter of effects of cloud and reflection. In the present collection he appears as a painter of architectural subjects. We must say that if architecture is treated pictorially we prefer to see it treated with somewhat more solidity and indication of detail than is to be seen in these sketches. Seen at a requisite distance, one may admit that the general effect of the buildings is conveyed, and moreover that they have an upright and structural appearance, as if solidly founded; but they are totally destitute of form in detail; mere spots of colour, windows represented by formless splashes, etc. That may serve to give the general effect of Venice in an artistic sense, but architecture is worth more careful treatment than that; and while the general colour effect is good, one becomes rather sceptical about its worth when we see that the front of the Ducal Palace, of which the arcades are stone and the upper portion brick, is shown as all of one tone from base to cornice. Some of the scenes in which water and shipping predominate are very good; "On the Maas" for instance (one of the few non-Venetian subjects); and the sketch of an effect of "coming storm" at Venice is powerful. But generally speaking, the style of the sketches is too slight and visionary for scenes in which architecture forms an important element. We congratulate Messrs. Dunthorne on the great improvement they have made in their gallery by the recent alterations.

Mr. Fedden's Pencil Drawings.

A COLLECTION of pencil drawings by Mr. A. Romilly Fedden, on view in a new small room which has been added to the Fine Art Society's suite of galleries, is a very good illustration of the interesting work that may be done by the pencil, without making any attempt to go beyond the proper capabilities of this instrument of artistic expression. The drawings are all small, and consist of town and village scenes under different aspects, alternating with studies of heads. The latter are all well executed but not mostly very interesting in character; the scenes form the best part of the collection, and are very effective, while they represent what may be called an excellent pencil style. "The Harbour" (42) we may mention particularly as one of the best. "The Haunted Room" (41), in which a figure of a woman, with her back to the spectator, looks through an open door into the darkness of a passage, is a very suggestive little picture, reminding one somewhat of Fred. Walker's

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THE INTERNATIONAL GAS EXHIBITION.

I. LIGHT.

ON Saturday last an International Gas Exhibition was opened by the Lord Mayor of London, at Earl's Court, London, and it is to remain open until the 17th prox. Although the exhibition is described as international, the foreign exhibits are very few. This is not so regrettable in connexion with the gas industry as it would be in the case of some other industries, for Great Britain, the birth-place of the gas industry, has up to the present date retained its leading position as gas maker and gas consumer, and has little to learn from abroad.

That the streets of some Continental cities are better lighted than many English towns, is due neither to the use of a better quality of gas nor to the use of superior burners or mantles, but to greater generosity in the consumption of gas and more careful attention to the condition of mantles and lanterns. In recent years Berlin has acquired repute as the best lighted city in Europe, yet Berlin is supplied with a lower grade gas than London. Paris also uses a poorer gas than is used in London. That the brilliant lighting of Berlin streets is not due to electricity is evidenced by the official statistics recently published, for of the total of 23,903 lamps in the city streets, 23,215 are incandescent gas lamps.

Great Britain possesses a magnificent stock of good gas coal; and for this reason gas, as compared with electricity, is cheaper here than in most other countries. That the fact that lighting can be efficiently and cheaply performed by gas is now becoming generally recognised, even by municipal authorities, is shown by the decision that the important new London thoroughfares, Aldwych and Kingsway, shall be lighted by incandescent gas lamps. The high-power lamps which have been selected for the lighting of these and other streets of importance may be seen at the exhibition, and if these lamps could be seen side by side with the best lamps exhibited in the last important gas exhibition, which was held at the Crystal Palace in 1882, the contrast would be most striking. Since 1882 the Welsbach system of lighting, and gas engines of high power, have been introduced, and gas has come into general use for cooking and heating purposes; and, in consequence, gas is now valued by its calorific value and flame temperature, instead of by its candle-power when consumed in an Argand burner. Pedagogues, with their proverbial conservatism,

still cling tenaciously to the Argand burner for testing purposes, but it has long since been laid aside in favour of the thermo-couple and the calorimeter by business men.

High-Pressure Gas Lamps.—The high-pressure lamps are naturally the first objects to attract attention in the exhibition. These lamps depend for their efficiency upon the increase in flame temperature obtained by increasing the pressure under which the gas is supplied to the burner. The compressed gas passing into the mixing tube of the burner draws into the tube through the air-holes a larger proportion of air than would be drawn in by gas under normal pressure. Combustion at the burner head, therefore, takes place more rapidly; and a shorter and hotter flame is produced than would result from the same volume of gas mixed with less air. Normal pressures in gas mains vary from 1½ to 4 in. of water, and by the use of compressors the pressure under which the gas enters the burner is increased from 16 in. (Sugg & Company's lamp) to 57 in. (British Compressed Gas Company's lamp), according to the views of the different manufacturers as to the most suitable pressure to be used for high-pressure lighting. The high-pressure flame is, in fact, a kind of blow-pipe flame, and equally good effects may be obtained by compressing the air supplied to the burner instead of compressing the gas.

We shall not attempt to describe the differences between the various forms of compressors and high-pressure lamps, but mention, as specially worthy of inspection, the "Millennium" lamp of the British Compressed Gas Company, which has recently been adopted for the lighting of Aldwych; the Keith lamps, with which a portion of the Queen's Palace is lighted, and of which some extremely satisfactory specimens may be seen in various conspicuous spots in the City streets; the high-pressure lamps exhibited by Messrs. Wm. Sugg & Co.; and the "Pharos" lamps, with which the main entrance leading up to the Ducal Hall is lighted.

Self-Intensifying Lamps.—Instead of obtaining an increase in the proportion of air drawn into the mixing tube of the burner by increasing the pressure of the gas flowing into it, the gas may be allowed to enter under normal pressure, and by enclosing the mantle and head of the burner in a glass case, which admits very little air to the burner-head, and which terminates upwards in a long chimney, a description of "forced draught" may be created. This forced draught will result in an increase in the proportion of air pulled through the air-holes into the mixing tube. The increase in efficiency thus obtained is not so great as that obtained by the use of modern high-pressure systems, but the results obtained are very good, and a point in favour of self-intensifying lamps is that it is not necessary to provide compressing plant. Good examples of self-intensifying lamps are the "Lucas" lamps, exhibited by Moffat's, Limited.

Gas Arc Lamps.—The term "gas arc" lamp is applied to a gas lamp which resembles an electric arc lamp in general appearance. Excellent forms of gas arc lamps are the "Humphrey" lamp, exhibited by Messrs. E. C. Haywood & Company; the "Khoma" lamp, exhibited by Messrs. Clark W. Harrison & Company, and the lamps from the Crown Lamp Works. The "Humphrey" lamp is particularly pleasing because, while emitting brilliant light, the light is softened and the eyes are protected from direct rays from the mantle by a large clouded spherical shade. Some of the gas arc lamps are forms of self-intensifying lamps.

Inverted Burners.—To obtain a gas lamp free from downward shadows, burners have been devised which will throw a non-luminous flame in a downward direction, and which, when fitted with a suitable mantle, will raise the mantle to brilliant incandescence. These inverted gas lamps possess all the æsthetic advantages of incandescent electric lamps. The exhibits include some clusters of very small incandescent inverted lamps mounted on handsome standards, and these form the most attractive description of gas lamp for the lighting of halls or wide passages which we have yet seen. Inverted lamps are well represented by the exhibits of the New Inverted Gas Lamp Company, the Star Inverted Incandescent Burner Company and Messrs. Falk, Stadelmann & Company.

Ordinary Incandescent Burners.—Incandescent burners and shades of all the descriptions in common use are exhibited, but these are so familiar to our readers that they do not require description. A very comprehensive collection of these goods may be seen on the stands occupied by Messrs. Falk, Stadelmann & Company.

Gas Light and Coke Company's Exhibits.—Earl's Court is situated within the area supplied with gas by this company, and they have constructed, as part of the Exhibition, a model workman's parlour and kitchen, and have fitted them with gas appliances in the style in which they are prepared to fit up the homes of the working classes. The company bear the initial cost of these gas installations, but the consumer pays a higher price for gas to cover the cost of the prepayment meter, stove, fittings, and pipes. The company have already about 185,000 of these penny-in-the-slot meters in use in the district they supply with gas, and they collect therefrom over 100 *million pennies* per annum. The fittings provided include a cooker and a griller or boiling-ring. A series of furnished rooms representative of a modern flat have also been provided with gas fittings under the supervision of the company.

Gas Mantles.—A host of mantles of different brands are exhibited by the various manufacturers and importers of these goods. The Voelker Incandescent Mantle Company have a large stand, upon which they demonstrate some of the methods used in the manufacture of Voelker mantles. This is a very interesting exhibit. The Buhlmann Incandescent Syndicate exhibit mantles manufactured in their factory in East London. These mantles are "burnt off" by machine instead of by hand, and are remarkably uniform in shape. The syndicate also exhibit an ingenious apparatus for testing the ability of mantles to resist injury when subjected to severe shocks. By means of this device the great difference in strength between some of the numerous brands of mantles placed on the market by various manufacturers may be demonstrated. Among the other mantles to be seen at the Exhibition mention may be made of the well-known "Veritas" mantles shown by Messrs. Falk, Stadelmann & Company, the "Bray XXX" mantles shown by Messrs. Geo. Bray & Company, the "G. I. C." mantles of the General Incandescent Company, Limited, and the "Ino" mantles of Messrs. Julius Norden & Company.

Self-Lighters.—Devices which possess the power of igniting coal gas when exposed in air to their influence are exhibited by Messrs. Baer & Company, of Berlin, and by Mr. Jacques Kellermann, of Berlin. These more or less resemble some of the self-lighters which have become familiar to the public during the last few years; but whether improvements have been effected which render them reliable self-lighters in all seasons, and after prolonged use, we are not in a position to state.

Illuminated Advertisements.—A form of illuminated advertisement which is attracting much attention at the Exhibition is exhibited by "Chameleon Signs, Limited." Any advertisement may be illuminated by this device at trifling cost by gas, and all the lettering is made to attract attention by appearing in a combination of constantly-changing colours. But while we mention this as an ingenious contrivance, we have no desire to see this form of advertisement adopted. We have already too many of them, and they are an irritating nuisance in our streets at night.

We shall have further comments to make on the exhibition.

CITY BUILDINGS AND FIRES.—Notification is given of an intended application to Parliament next Session by the Corporation for leave to bring in a Bill to require owners of houses and buildings within the City of London to provide stairways or other means of escape from fire. Authority will be asked for to empower the Corporation to apply for and the Court of Summary Jurisdiction to make orders requiring owners to construct such means of escape from fire, or, in case of their default, for the Corporation to provide the same at the owners' cost; and to impose and recover penalties.

INSTITUTE OF BRITISH DECORATORS.—A lecture on "Pompeii" was given by Mr. Hugh Stannus, on Monday evening last, at Painters' Hall. The lecturer gave a brief account of the history of the place, and of the catastrophe by which it was destroyed, and then, by a series of photographs shown on the screen, led his audience through the most interesting of the streets and buildings.

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE usual fortnightly meeting of the Royal Institute of British Architects was held at No. 9, Conduit-street, Regent-street, on Monday evening, Mr. H. T. Hare, Vice-President, in the chair.

The minutes of the last meeting were taken as read.

The Late Mr. Norton.

Mr. Graham (Hon. Sec.) said he regretted to announce the death of Mr. John Norton, Associate 1850, and Fellow 1857. Mr. Norton served for a time on the Council of the Institute, and was President of the Architectural Association forty-five years ago. He could not let that opportunity pass without saying a word in pleasant memory of their late colleague, for a more amiable and kind-hearted man never entered that room. He enjoyed a very large practice some forty years ago, and had a number of clients of great influence in various parts of the country, especially in the West of England. In testimony of that they proposed to publish in the next issue of the *Journal* a list of his public works. It only remained for him to ask them to be good enough to agree with him that a letter of sympathy be sent to the relatives of their deceased colleague, expressing their full recognition of his worth as a man and as a colleague, and of his merits as an architect. The motion was agreed to in silence.

Ferro-Concrete.

In the absence of Mr. W. Dunn through illness, a paper by him on "Ferro-Concrete" was read by Mr. R. Watson. The following is an abstract of the paper:—

Mr. W. Dunn said that, owing to many unpleasant experiences, there was a feeling among many architects and builders that concrete was a treacherous and unreliable material. In all such experiences there was something mysterious; the cement came from a maker of established repute, it had been specified "Best London" Portland cement, the sand and gravel looked clean, and the builder was an honest man. Nevertheless it failed to set; it cracked; it thrust out the walls, and generally led to a great deal of trouble. To make good concrete much care in the selection of the materials and in the mixing was required. The cement was the most important ingredient, and the only way to get good cement was to test it constantly and reject that which was faulty. That was the only way to ensure that only good cement was used. If the fact that it is frequently tested becomes known to the merchants, it will be found that a dangerous article, such as bad cement is, would be less and less frequently sent. When floors, walls, roofs, or pillars are made of concrete, a bad cement is really dangerous to life. It would be an excellent plan if the Institute, the Builders' Institute, and the cement makers could agree upon a standard suitable for architectural work. But until such a standard was fixed, architects must describe it themselves in their specification. Many cement experts had given model specifications, but there are some points in cement specification required for building work which a cement expert scarcely values.

Fineness of grinding is all important, as only the very fine particles have cementitious value. Foreign makers were much ahead of us a year or two ago; now we can get English cement which will all pass a 76 by 76 and leave only 10 per cent. on a 180 by 180 sieve.

This is a very fine cement, and perhaps too good for ordinary work. All, however, should pass 50 by 50 and leave only 5 per cent. on a 120 by 120 sieve. A good cement is economical; we make a stronger mortar or concrete with much less of it, so that the extra cost is more than repaid. The particles which are retained on a 50 by 50 sieve are practically so much sand.

The author strongly urged the use of a slow-setting cement. Pats made with the *minimum* quantity of water should set in not less than five hours when the temperature is at 34° F., and in not less than twenty minutes when the temperature is at 75°, and proportionately in time when the temperature is between these points.

Soundness or constancy of volume is one of the most important qualities a cement should have. Tests without elaborate apparatus are fortunately available. Make two cement pats on small pieces of glass, tap them out to a circular shape, about 3 in. diameter, ¼ in. thick in

the centre, and with thin edges; keep one under water and one in air for several days. The cement should then show no cracks, change of shape, or tendency to curl off the glass, if sound. The author went on to describe other methods of testing, and strongly urged architects to test their cements by one and all of them as often as they could. It would save many after troubles.

Tensile strength he regarded as the least important; it is the test on which the most varied results may be got by different observers according to the method employed in filling the briquettes. A strength of 400 lb. per sq. in. at seven days and 25 per cent. increase in twenty-eight days is usually asked for and easily attained; many briquettes he had found go up to nearly 1,000 lb. at seven days.

It is not unusual to specify that sufficient cement should be delivered on the works at starting, kept stored in a dry weather-proof shed to a depth of not more than 2 ft. and turned over daily for a fortnight before use. It is found that makers send out the cement hot from the mills, and (unless it is a very high-class cement) it is much improved by air slaking. Aeration seems to improve an inferior cement by the slaking of the free lime, which if it took place in the work would be dangerous. A thoroughly sound cement should have no free lime in it, and is not improved by air slaking; it rather suffers; cement in which there is no free lime can be produced by the maker, but it requires much care in the making, and is consequently expensive.

As regards the aggregate, the strongest concrete is made with broken stone and gravel; the size should vary from large sand to small stones, passing a 1 in. mesh, for floors or walls, to 1½-in. or even more for foundations. The cleanliness of the aggregate and the water is most important, as is also the cleanliness and sharpness of the sand. Small sand, such as would run in an hour-glass, is utterly useless—the sand must be fairly large and sharp; it should vary in size: the more uneven the sizes the smaller the voids. The finer the sand the less the strength. There should never be more than three of sand to one of cement.

The author described the process of mixing concrete, which should always be done under supervision. Concrete mixing machines are much used in America and on the Continent, producing very good and uniform results. These machines are rarely seen here. One has frequently seen on a building a lot of concrete mixed up, and left for an hour or so before being set in place. If too stiff more water was added. Such treatment of the material invites disaster; initial set begins very quickly, and the concrete should be put in position as soon as mixed, and without a moment's delay. When the concrete is eventually laid on the centering, or put in the moulds, it is put in in thin layers 2 in. to 3 in. thick, and beaten down with iron beaters very carefully all over. This is essential in order to prevent the formation of voids, and to increase the resistance of the concrete.

Mr. Dunn then treated in considerable detail of the strength of the material in place, describing various tests of cement made by eminent scientists, and illustrated by diagrams and mathematical calculations. For further mathematical investigation of the subject, he referred those interested to Professor Perry's "Applied Mechanics" (p. 345), and to M. Considère's experiments, the results of which were communicated to the French Académie des Sciences in a note of March 18 last—an abstract of his communication appears in the *Génie Civil* for April 30. These writers base their discussion on "Rankine's Ellipse" of Stress, which, as given in Rankine's own words, is not easy to grasp. In Alexander and Thompson's "Elementary Applied Mechanics," however, the ellipse of stress is fully explained, and a preliminary reading of part of the last-named book should enable anyone to follow Considère's or Perry's reasoning.

The resistance to the swelling and bursting action to which columns in concrete alone would be subject, can be produced by binding the columns with iron or steel wire. Makers of concrete columns do so bind these according as the effect to be combated is more or less clearly understood. What is done in the Hennebique column is done by other concrete specialists. In all there is first the concrete; second, vertical bars of metal, iron or steel; third, bindings of sheet metal or wire.

The method of construction is very simple. A wooden box or mould is made in which the rods are set upright; one of the bindings is then put in, and about 6 in. or 12 in. of concrete well rammed down; another of the bindings is put in and the process repeated.

The special functions of the vertical rods are (*a*) to aid the concrete in resisting the compression due to the load; (*b*) to resist any tensile stress which may be set up in the concrete by unequal loading or by any want of homogeneity in the material itself, which tensile stresses cannot be safely left to the concrete to overcome.

Almost all the makers of reinforced concrete constructions put their trust in the vertical rods of metal, as the special element adding strength to the concrete, if we may judge by the large proportion of metal so used, and by the rules employed to fix the safe load, which rules take no account of the binding.

If there were no initial stresses in the combination the load would be carried by the two materials on the inverse proportion of their rigidities; that is to say, if the concrete were ten times as easily compressed as the iron or steel, the iron or steel would be carrying ten times as much per square inch as the concrete.

But the question is not so simple. Concrete setting in air shrinks, while concrete setting in water expands. Columns for buildings always set in air, and consequently the concrete shrinks. As the concrete adhers rigidly to the metal, the concrete is put in tension and the metal in compression—into a state of internal initial stress—before the load comes on. So strong is this action that the concrete may be at the limit of its tensile strength, and the metal at its elastic limit. No formula has so far been devised which takes this initial stress into proper account.

The function of the bindings is to prevent lateral swelling and bursting. M. Considère was the first to give this its proper consideration and importance. In almost all columns, except M. Considère's, these bindings are usually about 6 in. to 12 in. apart, showing that the true use of the metal is not yet fully recognised.

The author gave the results of some experiments on concrete in compression, armoured and unarmoured, referring to those carried out by Professor Gaetana Lanza, and reported in the "Transactions of the American Society of Civil Engineers," (1903; p. 487); by M. Gary, of the Ecole Polytechnique, at Charlottenburg; by the Commission des Voûtes de la Société des Ingénieurs et Architectes Autrichiens, reported on in 1901; and others by M. Considère described in his papers on "Resistance à la Compression du Béton Armé et du Béton Fretté," in *Le Génie Civil* (November and December, 1902). Reference was also made to Mr. Dunn's report of the armoured concrete column test in the "Journal" of the R.I.B.A. for November 21, 1903, and to the test of a column made by Messrs. Cubitt & Co., and tested at Messrs. Kirkaldy's Testing Works in June, 1904.

The lecturer went on to give the formulæ and rules which various constructors use to determine the necessary sizes of reinforced concrete pillars to carry given loads.

As regards fire-resisting properties, from all the reports on the Baltimore fire, whereas intense heat was experienced, as will ever occur, the armoured concrete constructions appear to have stood best. Concrete and iron or steel expand at about the same rate under changes in temperature, and the permanence of the concrete covering in fires is no doubt due to this. There is now no doubt that iron or steel buried in ordinary concrete remains uninjured for generations.

When an architect decides upon adopting reinforced concrete for a structure, or part of it, he will probably put the work in the hands of a concrete specialist, who makes his own calculations for the strength of the members, and arranges the details of the construction according to his own ideas. But as the responsibility must always in some measure lie with the architect, he will naturally want to check the specialist's work, particularly when the contract has been let in competition, and there is an object in the specialist endeavouring to reduce cost to a minimum.

Monolithic Construction in Hennebique Ferro-Concrete.

M. L. G. Mouchel followed with a paper entitled "Monolithic Constructions in Hennebique Ferro-Concrete." He said that it had been his fate to be the pioneer of the new material in Great Britain. The work of initiation had been arduous, but was not without its compensations, as it had brought him in contact with many English architects and engineers whose courtesy and kind support had been a precious encouragement to him.

Having explained in detail the general principles of Hennebique ferro-concrete construction, M. Mouchel said that it was to its great simplicity, to the common-sense which had presided at its conception, that it owed its startling success. Any labourer of ordinary intelligence could be made an apt workman in the material in a few days. He himself had had to form his own gangs of men when he introduced ferro-concrete into this country, and it took him very little time to drill them in the practice of arranging the various parts of a work in which robustness was combined with simplicity.

Respecting the theory of the system of construction, it was evident that the laws, formulæ, and methods of calculation used for ordinary materials could not be applied in structures composed of such heterogeneous substances as concrete and steel. It had been objected that their formulæ for ferro-concrete was empirical. It was not so, because they had not started their work on formulæ. It was only after many years' patient observation of the results obtained that they deduced the formulæ which were the bases of all their work.

Ferro-concrete was an absolutely new material, which had come in its time to enrich the engineering world. It could not be treated as a combination of steel and concrete in which the properties of the component elements could be considered and treated separately. It had its own laws of deformation. Experiment demonstrated that a rectangular bar of concrete, when subjected to tension, showed an elongation at rupture of, say, one-tenth of an inch; a bar of ferro-concrete, of the same external dimensions and made of the same concrete, showed at rupture an elongation of an inch; that is to say, ten times greater, before showing any crack or trace of disintegration, than in the first case. The elasticity of the new material was well known; it varied in notable proportions with the distribution of the steel in the mass of concrete.

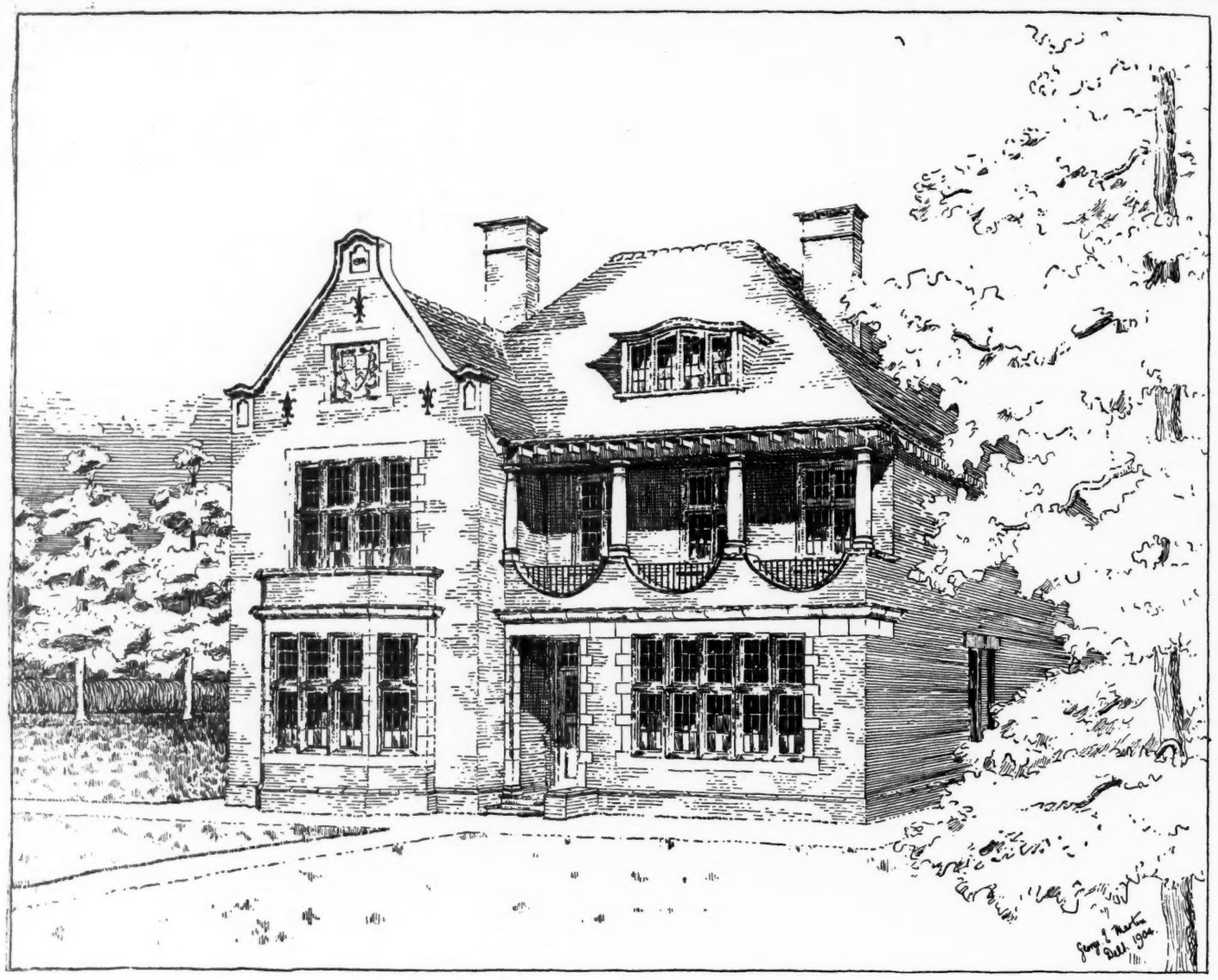
The so-called Hennebique's empirical methods could be relied upon with absolute confidence; for they had been the basis upon which over 12,000 different works had been constructed, and which, in almost every case, had been subjected to severe tests, the results of which had been carefully recorded.

As regards tests, the age of a piece of concrete is a most important element. Good concrete goes on increasing in quality year after year. It is not advisable to test to destruction samples a few weeks or a few months old. No two results will ever be alike, even on two samples of the same age, unless they are composed exactly of the same materials, mixed in identical proportions and by the same operator. The adherence of concrete to steel increases with the age of the work. Unlike construction in ordinary materials, which, if left to itself, will deteriorate, ferro-concrete construction goes on improving endlessly in quality with age. Tests must be made on the structures themselves.

The Hennebique practice is always to test their structures within a very few weeks after completion with loads 50 per cent. in excess of the calculated load. When the load is removed, it is found that the floor, owing to the elasticity of ferro-concrete, regains its former level, or, at any rate, that the deflection, if any, will be quite inappreciable. It could not be otherwise, for any stress applied to any part of a well-made ferro-concrete floor affects not merely the part under load, but also a very large area of the floor surrounding the part under observation. This is due to the absolute monolithism of the work. Besides static tests, there should be severe dynamic tests; without these the trials of a structure in which concrete and steel are combined are incomplete.

The great security offered by ferro-concrete construction arises from the fact that it never collapses suddenly, but always gives, long beforehand, unmistakable warnings.

The author described an interesting test on a Hennebique beam which he had had carried out at Bermondsey. The beam was placed on two common concrete supports; 30 tons—*i.e.*, five times the calculated load—was put by degrees on the beam, when the operation had to be stopped, the pillars being



New Headmaster's House, Upper Latymer School, Hammersmith.

crushed and having taken a slanting position, which caused the beam to twist badly. The load was then discharged. The deflection was measured at that point, and the following morning it was found that the floor had sprung back by 1 in. The beam was cracked, but loading might have been continued for some time before complete destruction had not the supports given way.

Buildings of Hennebique construction have been subjected to very unforeseen tests. At Lens, in the north of France, coal silos had been constructed of ferro-concrete 40 ft. high, to contain 1,200 tons of coal. The silos were supported on fourteen pillars. One day, when they were quite full to the brim, a train of coal trolleys came into contact with one of the legs and broke it. The corner of the silo structure was thrown suddenly in cantilever, but, owing to the monolithism of the whole building, no injury resulted to the silos themselves, nor to the other three pillars of the silo affected. They merely had to reconstruct the broken pillar. A car-shed of Hennebique construction at Le Mans was divided in two spans of 21 ft. by a central line of ferro-concrete pillars. One of the cars coming down a gradient got out of control, ran off the metals, and dashed into the central pillar at the entrance of the shed and broke it. The span instantly became 42 ft. instead of 21 ft., but, notwithstanding this, the beams supported by that pillar held perfectly, and did not show the least trace of strain—another proof of the safety due to the monolithism of the ferro-concrete construction.

The construction of ferro-concrete piles the author described as one of the finest, most startling, and most useful applications of ferro-concrete. Their cost is little more than that of a timber pile, and they can bear safely a weight so much in excess of timber piles that a very considerable economy can be effected on the total cost of a foundation. At the present moment a foundation was being constructed in which the use of ferro-concrete piles procured a saving of over 12,000*l.*, as compared with the original estimate for timber piles. Judicious distribution of steel in ferro-concrete is at the root of success, whether it is in a beam, in a pillar, or in a floor—but, above all, in a pile.

Owing to the absolute monolithism of Hennebique constructions, they are far less liable to vibrations than ordinary constructions. One of the things which strike one most when entering a factory constructed entirely of ferro-concrete, where heavy machinery is at work, is the absence of vibrations and of noise. It is an everyday practice to attach shafting direct to the Hennebique pillars, which consequently have to sustain powerful lateral pulls. Heavy machinery—such as disintegrators grinding heavy materials, dynamos, and dynamo-motors—is also fixed direct on the Hennebique floors; and, after years of that treatment, the quality of the concrete has been found not to have suffered in the least.

Indisputable proofs have been given that the very best material to protect steel is concrete itself. Oxide of iron cannot exist in contact with concrete; rusted bars embedded in concrete will, in the course of a month or so, be as bright as new.

Concrete used in ferro-concrete is markedly different from ordinary concrete, both in its composition, in its make, and in the way it is employed. It is composed of materials of small volume ($\frac{3}{4}$ in. maximum for the gravel or stone), and the materials used are very clean. The proportions of sand and stone are always adjusted so as to give a concrete quite full—it is used in small quantities at a time, and so vigorously rammed that no cavities or porosity are at all possible.

As regards the adherence of concrete to steel, its value is such that it justifies the practice of some ferro-concrete builders who only reckon on concrete to make the junction between the different metallic parts of a structure.

Experiments have demonstrated its surprising resistance to high temperature and sudden cooling. After the most destructive fires, Hennebique constructions have been found as sound as ever. At the great Baltimore fire the Hennebique buildings stood the ordeal admirably, and they are again in use as before. One of them received on its roof the top stories of a high "sky-scraper," and it resisted that shock as well.

As regards ornamentation, there is no reason why ferro-concrete buildings should not be made as artistic as constructions in ordinary materials. There is none that lends itself better, and more economically too, than ferro-concrete to any shape that one may wish to give to it. The author exhibited photographs of some buildings in Paris erected entirely of ferro-concrete which would be an eyesore to nobody in London. To show the ease with which the material lends itself to ornamentation, a photograph was exhibited of the main reception-room in the extension recently carried out at the French Embassy in London. Except the external walls, the whole of the building is in ferro-concrete.

In his concluding observations the author referred to the mischief of the building by-laws in force in London. London enjoyed the unique privilege of being the only city in the civilised world where ferro-concrete constructions are actually prohibited. Building regulations of nearly every other city in the United Kingdom did not, read strictly, permit of the use of ferro-concrete; but, after intelligent and impartial investigation by the various authorities, Hennebique constructions had been allowed. Such buildings have been erected in London, but only on ground belonging to railway and dock companies. These facts had been brought to the attention of the London County Council when they had been applied to for permission to erect similar buildings on ground within their jurisdiction; but in vain. They always met with the same reply:—"The Act stipulates a certain thickness for walls. If you give your walls that thickness you can build." But to give ferro-concrete walls that thickness would be financially an impossibility and, practically speaking, an absurdity, since the comparatively thin walls

of ferro-concrete are many times stronger and safer than those stipulated in the Act. He trusted that when the new London building by-laws were framed, ferro-concrete construction would no longer be excluded. Ferro-concrete construction is absolutely safe; it cannot lend itself to the malpractices of the jerry-builder. Trickery is impossible with it. Should the contractor try to cheat, try to escape the specification, detection will not occur months or years after, but at once.

The Chairman said the two papers they had listened to were undoubtedly of great interest, but at that late hour in the evening it was quite impossible to allow any discussion, although there were many gentlemen present who would have liked to have made remarks and to have asked questions. All they possibly had time for now was the passing of a formal vote of thanks to the readers of the papers. As it was such an interesting question, it would be quite possible and desirous for them to adjourn the discussion until the next business meeting on December 5, and probably M. Mouchel would favour them with his attendance again, and open the discussion with a few remarks which he had not time to give that night.

Mr. H. H. Statham asked if they would have the papers in print before that.

The Chairman said they would, and they would hope also to have Mr. Dunn with them and the other guests present that evening.

Mr. Graham proposed a hearty vote of thanks to the readers of the papers.

Mr. S. Perkins Pick, in seconding the formal vote of thanks, said he would add but one word. Mr. Dunn stated that the cement was the most important part of the concrete. He hoped when the discussion took place they would have a good deal to say on the aggregate, because in his opinion a great many failures of concrete had come about from the bad aggregate.

The motion was carried, and the discussion was adjourned till December 5.

NEW HEADMASTER'S HOUSE, UPPER LATYMER SCHOOL, HAMMERSMITH.

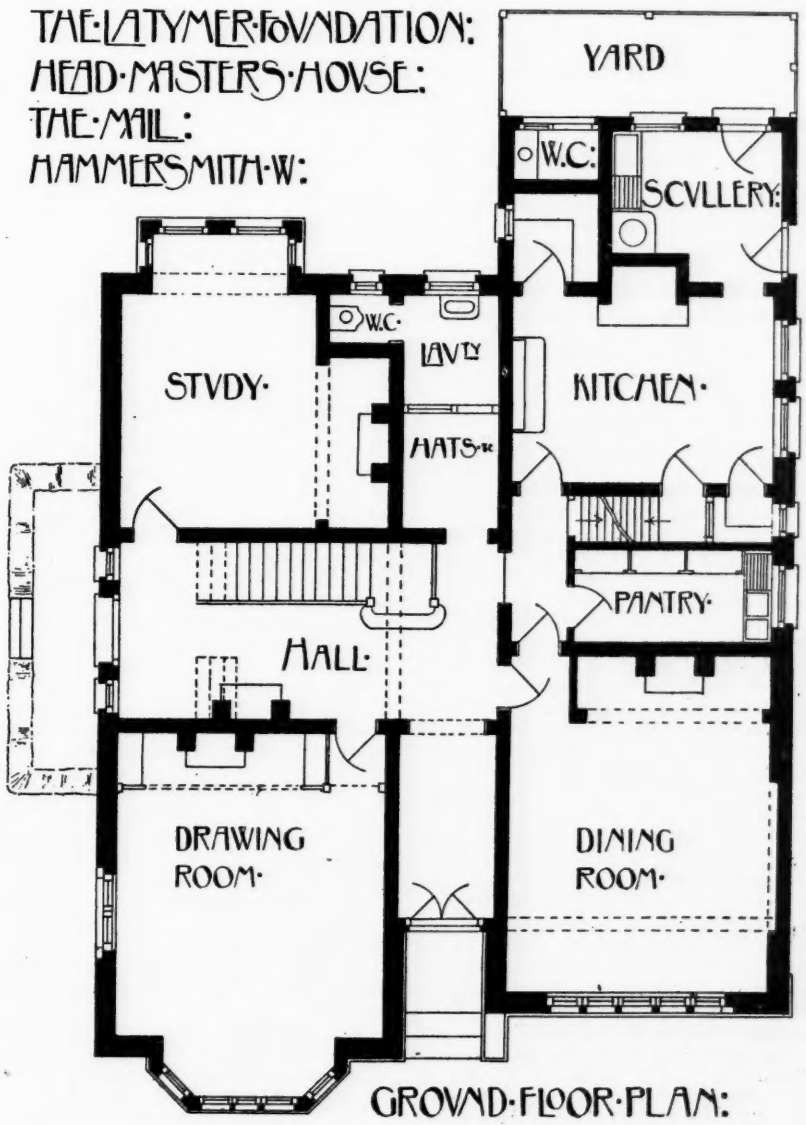
THIS house is in course of erection, and is being built in red Sittingbourne bricks with Monk's Park stone dressings. The house will occupy the site of an old riverside mansion, pulled down some years ago, and the balcony has been provided to take advantage of the excellent views of the river that the site affords.

The contract has been given to Messrs. Frank W. Harris and Co., of Barnsbury, and the joint architects are Mr. W. I. Chambers (of Messrs. Chambers and Martin), London, and Mr. J. H. Brown, Fulham.

RECENT EXCAVATIONS IN THE ROMAN FORUM.

AT the London Institution, on Monday evening, Mrs. E. Burton Brown gave a lecture on "Recent Excavations in the Roman Forum."

In the course of the lecture—which was illustrated by lime-light views—Mrs. Brown said her only claim to being privileged to speak about the Forum and the excavations of Comm. Boni was that for eight years she had followed them daily. She had watched so much what had been done and was being done that she could really claim to know at first-hand about the wonderful work he had achieved and was still achieving. He had found all the things which were most significant for their knowledge of the religion and of the political history of the early Romans, in the short space of between six and seven years. The Latin peoples began to come into Italy about the middle of the second millennium before Christ; they were in a pastoral stage, and they settled towards the west on the low hills. The Forum was simply a narrow low-lying marshy valley surrounded by hills, on the top of each hill there being a small community of those Latin peoples settled. The Forum became the market-place of these peoples, who came down from the hills to barter and exchange, and it was owing to the intense loyalty of the Romans to their old early traditions and to anything which had to do with the origin of their State, that the Forum Valley became the centre of the whole of the life of Rome. It was there that the criminal courts were held; that the triumphal processions passed by; where the buying and selling was done; and where social meetings were held. It was this wonderful loyalty to their own traditions which was one of the great secrets of Rome's greatness, and why it lasted so much longer than the little republic of Greece did. First there were open stalls, and then the great bankers' shops, and so on, which became the cardinal points of interest in the Forum as a market-place. Mrs. Burton Brown proceeded to point out the principal features of the Forum and the buildings adjoining on the map thrown upon the screen. As they knew, records of early races had been found generally to be better preserved in tombs, and Comm. Boni pointed out some years ago that they knew there was a sanitary law in Rome which precluded the burial of the dead in houses, and he believed that as the Forum Valley lay in the midst of village communities there would probably be tombs there. He dug in many parts of the Valley, but most of the old tombs had been destroyed by the foundations of later buildings. Just at the end of the Esquiline Hill, however, he found an interesting and exceedingly primitive graveyard. The bottom stratum of these tombs dated from between 1300 and 800 B.C., and in one was found a warrior who had been buried and was not burned. But at the same level were found a great many other tombs of another character—they were not graves, but pit tombs. About thirty-seven such tombs were excavated, and at the bottom were found enormous jars. Inside the large jar was a smaller jar which contained the ashes of the dead man, and in the large jar also were from nine to thirteen vases containing the remains of food. In some of them the bones were so perfectly preserved that they could be identified as the bones of goats and sheep, and in one were the bones of a fish, which were exactly identical with the bones of a fish now found in the Tiber. The reason why food was buried was doubtful. The general belief was that it was placed there as food for the spirit of the deceased, but it seemed more probable that it was an act of simple sacrifice—the people sacrificed what they found most difficult to get as an offering to the deceased. The pottery was exceedingly interesting, for it was all made by hand before the introduction into the country of the potter's wheel. Boni took out some clay from the district, and proved that these early people used the clay of this very place. In several of the tombs were found models of huts. They were round, with gabled roofs supported by cross beams with a peculiar little chimney. On the frontier between India and China some years ago she saw huts exactly the same as the models found in the tombs. They found also in the Forum graves of a later date with pottery which was well made. They were tombs of little children, and were about 800 B.C. The lecturer next dealt at some length with the pool of Juturna. She remarked that it had always been the duty of the women to go for water while the men were away fighting, and it was just the same in the Forum. The little group of shrines started with the water-spring of the Pool of Juturna, just at the end of the Palatine. To excavate this Comm. Boni had to dig down about 50 ft. He found many things, but nothing so interesting as this Pool of Juturna. What they saw on the screen was a great oblong basin made of concrete with a base intended for a statue, which only dated from the reign of Augustus. They found another large basin underneath, and underneath again were found traces of a little pool with yellowish sand. There was no doubt that the Romans thought the water of this pool had curative properties, for alongside were a number of little arched chambers which must have been erected for the sick, and there were also fragmentary statues of health deities. They saw first that the Pool of Juturna was for the water supply for the Palatine women, and then was used as a health place. There had also been found, however, the statue of a horse and two torsos, which undoubtedly referred to the story of Castor and Pollux. When the Tarquins were turned out of Rome by Brutus and his army, they caused to be spread



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the legend that Castor and Pollux had helped them to win the battle, and that after they had done so they washed their horses at a well. The well referred to was undoubtedly the Pool of Juturna, and statues of Castor and Pollux were erected just by. Beside that the temple to Castor and Pollux was erected, and the three remaining pillars were the most beautiful thing in the Forum. A few steps away from the pool was found a white marble well-head, but the peculiar thing was that there was no well. It looked down a shaft, and Boni found that it was supplied with water from a little leaden pipe from the Pool of Juturna. It seemed probable that this was to enable the Vestal virgins to obtain their supply of water, which it was their duty to get for all great expiatory sacrifices. The lecturer briefly referred to the remains of the Temple of Vesta, and the House of the Vestal Virgins, which she said must have been an exceedingly beautiful house. Coming to the Regia she (Mrs. Burton Brown) said that the basis of what may have been the sacrarium for the sacred spears of Mars was unearthed. The Regia stood by the Via Sacra, and there were still two interesting shrines left. Going towards the Quirinal Hill they found the Comitium, what was the House of Commons of ancient Rome, and the Senate House, or House of Lords, and they discovered last May the Gulf of Curtius. Boni chose the Comitium for excavations, and found twenty-three layers. It was a regular record of Roman life—one floor above another. There were found traces of the Rostra. There was a mass of evidence that in the Comitium near the Rostra was the "black stone." The black stone was a great piece of black marble let into a white marble pavement. Boni shored this up, and got beneath to see what was there, and he found underneath the bases of two statues which might well be those of the lions said to guard the tomb of Romulus. Behind them were two columns, each of which was originally about 5 ft. high, but had been broken off. There was an inscription on one of the stones, but although about 87 papers and books had been written on this inscription, only one word could be made out. It was probably broken by the patricians in their anger against the Plebians. There were records by Cicero that about the end of the IInd century B.C. these stones were broken. They were found surrounded with ashes and broken vases, and it was evident that a great sacrifice was made there, and the place burned away, although it was marked by the "black stone." In conclusion, Mrs. Burton Brown showed a number of photographs of the Forum of Cæsar, and of the great system of underground tunnels, by which Julius Cæsar hoped to provide better games for the people. These tunnels were 7 ft. high, and 4 ft. wide, and there were openings to the surface, and lifts were constructed, worked by windlasses, one of which Commendatore Boni found.

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of the London County Council was held on Tuesday in the County Hall, Spring-gardens, S.W., Mr. J. Williams Benn, Chairman, presiding.

Loans.—On the recommendation of the Finance Committee it was agreed to sanction a loan by Hampstead Borough Council of 27,340*l.* for electric light installation, and to lend Mile End Old Town Guardians 1,310*l.* for poor law purposes.

Selected Lists of Contractors.—On the recommendation of the Education Committee, it was agreed that the name of Messrs. Lole & Co., of Trafalgar-square, Chelsea, be added to the selected list of contractors to be invited to tender for structural alterations and repairs to school buildings; and that they be allowed to tender for works to the value of 7,000*l.* That the name of Messrs. Kirk & Randall, of Warren-lane Works, Woolwich, be added to the selected list of contractors to be invited to tender for the erection of new schools and additions to schools. That the name of Mr. A Fernhead, of No. 354, Caledonian-road, be added to the selected list of contractors to be invited to tender for the electric lighting of L.C.C. schools. That the names of the under-mentioned firms be removed from the selected lists of contractors to be invited to tender for works in connexion with L.C.C. schools—(i) Mr. J. Watkins, Clapham; (ii) Mr. J. Burrows, Islington; (iii) Mr. T. Nicholson, Soho-square; and (iv) Messrs. George Williams, Ltd., Holland-park-avenue.

Storm Floodings.—On the recommendation of the Main Drainage Committee, the following recommendations were agreed to:—

(*a*) That the estimate (No. 4324) of 10,000*l.*, submitted by the Finance Committee, be approved; and that expenditure not exceeding 10,000*l.* be sanctioned for the acquisition, in connexion with the scheme of flood relief works, of properties (including the site at Shad Thames) necessary for the erection of pumping-stations and the construction of storm-water outlets.

(*b*) That, subject to the consent of the Secretary of State to the compulsory acquisition of the property, the site at Shad Thames, Bermondsey, as shown by red tint and red hatched lines upon the plan presented to the Main Drainage Committee on 12th May, 1904, be approved as a site for the erection of a pumping-station in connexion with the scheme of flood relief works.

(*c*) That application be made to the Secretary of State for the Home Department for his consent to the compulsory acquisition by the council of such land and property as may be required for the purpose of a site for a pumping-station at Shad Thames; and that before such application is made the solicitor do take the steps prescribed by section 153 of the Act, 18 and 19 Vict., cap. 120.

Sewage of Claybury Asylum.—On the recommendation of the Asylums Committee, it was agreed that the estimate (No. 4342) of 1,150*l.*, submitted by the Finance Committee be approved, and that expenditure not exceeding that amount be authorised for the laying of a drain from the filter beds which deal with the sewage from The Hall, Claybury, to connect with the drainage system of the farm buildings.

Erection of Buildings at the Rear of No. 10, Parson's-green, Fulham.—The Building Act Committee recommended, and it was agreed, that the solicitor do take all necessary steps to obtain the decision of the High Court upon the case stated by the magistrate in the matter of the Council *v.* Heathman, *re* the erection of buildings at the rear of No. 10, Parson's-green, Fulham.

Arbitration Case: Hackney-wick to Abbey-mills Relief Sewer.—The Main Drainage Committee recommended, and it was agreed that the estimate of 750*l.*, submitted by the Finance Committee, be approved: that expenditure not exceeding 780*l.* be sanctioned in connexion with the award of the arbitrator and of the costs of and incidental to the arbitration proceedings and to the settlement, in the matter of the claim of Messrs. J. G. Nicholson & Sons in respect of damage to their property at Bromley-by-Bow by reason of the construction of the Hackney-wick to Abbey-mills relief sewer.

Rating of Site Values.—The Local Government Committee reported with reference to the meeting on October 7 last of a municipal conference on the taxation of land values, convened by the Glasgow Corporation, when resolutions were passed in favour of the introduction of legislation on the subject. The committee stated that the Glasgow Corporation had asked whether the Council was prepared to co-operate with the committee of the conference in endeavouring to secure that the principles for which the conference was contending should be placed on the Statute-book. The Local Government Committee were of opinion that the bringing into line of so many provincial authorities was the most important step yet taken towards the rating of site values, and the Council should do what it could to assist the conference in its efforts to bring about this reform of the system of local taxation, which the Council had long advocated. They accordingly recommended:—"That the Council reaffirms its opinion in favour of the direct rating of site values, and that it be referred to the Parliamentary Committee to approach the members of Parliament representing London constituencies with a view to their balloting for a place next Session for a Bill on the subject of the rating of site values."

Mr. H. P. Harris moved as an amendment that the recommendation be referred back to the committee, with instructions to report upon the reference made to the committee in March, 1902, to report as soon as possible upon the proposals contained in the minority report of the Royal Commission on the Taxation of Site Values, and also to state the general provisions of the Bill which they desired members of Parliament to ballot for.

Mr. Sankey seconded the amendment.

On a division the amendment was rejected by eighty-five votes to thirty.

Sir Melville Beachcroft moved the further amendment to leave out all words after "site values."

Mr. E. White seconded the amendment, which was rejected by a large majority. The recommendation of the committee was then adopted without further discussion.

The Council adjourned at 6.30 p.m.

APPLICATIONS UNDER THE LONDON BUILDING ACT, 1894.

The London County Council at their meeting on Tuesday dealt with the following applications under the London Building Act, 1894. The names of applicants are given between parentheses:—

Lines of Frontage and Projections.

Kennington.—The retention of a one-story addition at the rear of the Stockwell Railway Station, Clapham-road, abutting upon Binfield-road (Mr. W. F. Knight for the City and South London Railway Company).—Consent.

Fulham.—Railway station for the Metropolitan District Railway Company over the railway cutting at the corner of Gliddon-road and Margravine-gardens, Fulham, and to be known as Baron's Court Station (Mr. G. Estall).—Consent.

Kensington, South.—An iron and glass hood in front of No. 23, Roland-gardens, Kensington (Mr. W. Willett for Mr. J. B. Ellison).—Consent.

Fulham.—A gas-meter house at Beaufort House Schools, Lillie-road, Fulham (Mr. T. J. Bailey for the Education Committee of the Council).—Consent.

Bow and Bromley.—A building on a site abutting upon the eastern side of Wick-lane and northern side of Monier-road, Bow and Bromley (Mr. T. Wilson for J. Chessum & Sons).—Refused.

Hampstead.—Buildings upon a site abutting upon the southern side of Fawley-road and western side of Crediton-road, Hampstead (Messrs. Boehmer & Gibbs for Mr. W. Walker).—Refused.

Islington, North.—Fence walls and gates and an open iron shed at the southern end of Windermere-road, Islington (Mr. J. W. Stevens for Messrs. Knowlman Brothers).—Refused.

Lewisham.—A temporary building on a site on the east side of High-street, Lewisham, northward of No. 203, abutting also upon Court Hill-road (Austin Cycle Company).—Refused.

Space at Rear.

Marylebone, West.—A modification of the provisions of section 41 of the Act, so far as relates to the proposed erection of an additional story to No. 35A, Great Cumberland-place, St. Marylebone (Mr. R. G. Hammond for Mr. F. Dugdale).—Consent.

Formation of Streets.

Walworth.—That an order be issued to Messrs. Cluttons, sanctioning the formation or laying out of two streets for foot traffic only to lead from Liverpool-street to Merrow-street, Walworth (for the Ecclesiastical Commissioners).—Consent.

Line of Frontage and Construction.

Islington, North.—A temporary office building at No. 89, Fonthill-road, Islington (Mr. W. Grummitt).—Refused.

THE ARCHITECTURAL ASSOCIATION DISCUSSION SECTION.

THE third meeting of the session was held at 18, Tufton-street, on the 16th inst., when Mr. W. Curtis Green read the following paper entitled

"*The South Kensington Museum for Architects.*"

'The subject of this paper was suggested to me by Mr. Lishman, and I accepted it in preference to unknown dangers. I imagine that if I could skim a few of the many possible subjects the museum offers and give you the cream, the object of the paper would be gained. My inexperience and the vastness of the subject are against such a possibility; and not only so, the museum is principally concerned with the handicrafts with which only the craftsmen practising them can adequately deal; just as in architecture only the best can be learned from architects of practical experience. The crafts are, however, organically associated with architecture, and cannot properly be separated from it, and the more we study them the better. It would probably be more profitable to begin in the workshop rather than in the museum. In the former we see the practise, in the latter only the results, and it is with the practise, *i.e.*, the causes of the results, that we should be principally concerned. To recognise good from bad in a museum we must understand the methods of the workshop, we must get down to the facts and work if possible among those whose eyes are open to distinguish good from bad, working in the spirit and traditions of those who fashioned the useful and beautiful things of the past. To understand our work is to be in sympathy with the simpler elements of it.

One reads of Michael Angelo spending years of his life quarrying his own marble—it is doubtful if those years were wasted. Or, again, whether the painter-architect who built the Campanile at Florence was not all the better that he began life as a shepherd? Ploughing, hewing, quarrying, iron smelting, weaving, moulding, all go to make up the complex conditions of modern building, lost sight of perhaps in modern specifications, but a due regard for which is at the root of all great success in building.

I think we must feel our relationship to the past and its workers to kindle the enthusiasm necessary to get us over the difficulties of to-day. Those who have been successful latterly have had this enthusiasm; they have had the genius at the outset of discerning the facts, and having mastered them—questions of design solved themselves—the weaving of fresh inventions became more easy than the revival of any style. They very likely did not feel at home the first time they entered a museum or gallery any more than you or I. Personally I have felt the chaotic sense of impotence in this museum, as in a big library without a librarian. It is only as we are enlightened outside under the sobering influence of technical knowledge that the "little miracles of art" begin to breathe for us. It is easy in the conditions under which we work to make mistakes. We may start with plenty of enthusiasm, but over confident, or unaware of the pitfalls that await us. To have spent hours drawing a subject the art of which at the time was a closed book; to have bought photographs of comparatively worthless objects and come home with copious notes and measurements without having seen the precious things we ought to have seen; to have measured carefully the *only* part of St. Paul's Cathedral not the work of Sir C. Wren—these are humiliating experiences to which I myself must own. Some students are better guided, or naturally do better; they browse in any pasturage, however rich, choosing wisely, referring from the first what they have before them back to their natural elements, or to recognised standards of taste which they have been so fortunate as to embue from childhood. But there are a great many, perhaps the majority, who emerge from a home happy very likely in everything save in its pictures, furniture, and ideas of art. They have imbibed the current opinion that art is apart from life, an adjunct, a luxury, consisting of churches, pictures, and drawing-room statuary. Study at a museum may be the first corrective they will receive, and they enter it without the knowledge necessary to discriminate between the good and bad work which it holds. A museum represents a great change that has taken place in social life. The machine now rules us, and all that stands in the way of it and of the development of our mechanical faculties is in danger of disappearing. The State has at great expense gathered together the crumbs and fragments of the past that remain, and is engaged at last in properly housing them. It is affectation to rail against the present conditions of society unless we are willing to place ourselves outside its pleasures and conveniences; we cannot get back to the palmy days of mediæval art and romance even were it proved to be desirable. S. Bonaventura, writing in the XIIIth century on the arts, says that "the illumination of mechanical arts is a way to the illumination of sacred Scripture; and there is nothing in them which does not predict and foreshadow the true wisdom." I quote this merely to show that our art is a great enough concern for us for a lifetime, so near is it to the heart of things.

In the museum we see art in the humblest objects and materials. We can trace their relationships, and see that it was this relationship that made it so powerful in the past. It shows a close and healthy connexion with things of common use. There are no boundaries between the so-called "fine arts," the higher mechanical, and the lesser and useful ones. Hand and mind were trained in the same school, under master workmen, having for models contemporary work. Architecture, sculpture, carving, and painting were intimately connected, woven together of necessity and by Nature. As an instance of this, take the cast of the monument of Walter Grey from York Minster, in the architectural room. It is a rather ornate work of the XIIIth century. The architecture adequate and refined; the sculpture of the recumbent figure simple and impressive, befitting an effigy neither dead nor sleeping; the carving of the foliage and the birds in the finials is fresh and pleasure-giving, while touches of quaintness are allowed. There are two French fragments of the same date as the foregoing close by, one a charmingly-treated little Assumption of the Virgin from Notre Dame, the other a retable from the Church of Saint Germer; each of them show a mastery of design, of figure sculpture, and carving. The casts of the doorways at Norwich and Rochester show the same connexion, and what would the Gothic portals from Amiens and Bordeaux be without their figure sculpture and carving? There is also a fine cast of Nicola Pisano's Pisan pulpit. Born at the beginning of the XIIIth century, it must not be forgotten that he grew up among some of the fine sculptures of the ancients, from which he got his inspiration. Classic as his figure work is, he has been called the founder of Gothic sculpture. Here you have a cast of his most famous work. It does not give the beauty of the material, the granite, jasper, and marble columns, but the sculptures are there, showing his study of classic models, some of the figures being direct copies from the Greek work in the Campo Santo at Pisa. I think it is the lovable humanity in the sculptured work of the XIIIth century that appeals to us. There is more reality about it than in the realism that succeeded it. The symbolism is less crude and mechanical. The later and richer work shows less restraint and less allegory; it fills us at once with a sense of the cleverness of the artist and with wonder at the command he has attained over his tools and material. As the admirer of the Renaissance craftsman said, his production seems "as it were alive, a marvel too great to be believed." Such an end shows a misunderstanding of the purpose of art, which is not to exalt either the artist or the material into anything marvellous or unnatural. Neither is the artist to be a slave to technical skill and to imitation. You can judge of this by comparing the pediment of the doorway of Milan Cathedral with the work just mentioned. The cast of this hangs on the north wall of the architectural cast-room. Notice also the fine western portal of S. Sauveur at Aix, in Provence, the doors of which, the work of nearly a century later, very richly carved and sculptured, are treated in a manner much more suitable for bronze casting than for wood. The German work of Adam Kraft in the XVth century is also interesting; it seems to me too pictorial for architectural decoration. His large Schreyer monument at Nuremburg is a design that would look more suitable executed in tapestry than in marble.

Besides enabling us to compare the characteristics of the different periods and the treatment suitable to different means and materials of expression, the museum gives an insight to any district or country. You can see the peculiarities of the work before visiting it, or remind yourself of the things you have seen on your return. To enter the Italian court is to desire to be in Italy again. It suggests cool white churches and rich colour decoration, sunny piazzas and polished marbles. We are in a new world, the world of the Renaissance. The fancy that inspired what we see is not that of the Gothic period; left behind are the XIIIth and XIVth centuries. What we see now is less lovable and homely, more scholarly, more refined and dignified; more dependent on exact workmanship and on fine materials; more the work of one individual who has coerced others to assist in the expression of ideas too great for them to understand. The architecture of the Renaissance is so dependent on greatness of idea, repetition and symmetry, that these fragments at the museum serve only to show the extraordinary skill and beauty of the workmanship. You can study Italian architecture better upstairs in the library from books and photographs. Here are only incidents; Italian history is the story of the art of the Renaissance. The whole field of art is widened and extended, and its study becomes more complex. Intellect is at work superseding the saintly artists of the XIIIth century. Arnolfo's fine Gothic church of Santa Croce at Florence passes almost unnoticed amidst the later work of the sculptor architects. In the cast-room is a copy of the Renaissance pulpit in this church which attracts more notice from visitors than the church itself. It is the work of Benedetto da Miano; it shows the extent to which refinement with strength may be carried, and the attraction of elaboration. The detail is as beautiful as the general outline. The exquisite grace of the tiny statuettes set in their porphyry niches, as well as the panels illustrating the life of S. Francis, is delightful. The execution of the whole work is carried to the last pitch of perfection, done by a man who began life as an intarsia worker. I speak with knowledge of this pulpit, having spent fifty precious hours at Florence making a drawing of it. Another example of the sculptor-architect's work at the museum is a cast of a window from the Certosa of Pavia. It is noticeable in these buildings that as the figure work improves the carving of the natural objects becomes harder and less free and graceful.

Unfortunately the great master architect, sculptor, engineer, and painter is not properly represented as far as architecture goes. There are no models of the Medici Chapel at Florence except for the statue of the Duke Lorenzo himself. In speaking of Michael Angelo I should refer to Alfred Stevens, so well represented in the museum. We cannot, in my opinion, study two greater masters of classic form applied to modern building. Their work was conceived in the round. With them sculpture and carving was not a thing to be added on afterwards or left out altogether as the funds allowed. When they employed either it was an integral part of the design. Besides the many interesting architectural fragments it is possible to study representative work of most of the great sculptors of the Renaissance. There are copies of the works of Orcagna Donatello, the della Robbia's Ghilberti, and the rest, each of their work distinctive and impressed with their own individuality.

Reverting to the humbler object of this paper, which is an endeavour to show the value of the museum for studying the handicrafts, we naturally turn to carpentry, which is so closely allied to architecture. Furniture, like building, was once intended to serve the everyday uses of common necessity; as this is more generally realised we shall be able to furnish our houses again so that they will be both convenient and interesting. We find very few varieties of furniture in the museum because there were very few different kinds of furniture made in the Middle Ages. The box was the principal item in a room; cupboards, stools or benches there were, but tables and chairs came later, and were something of a luxury. There is, unfortunately, little furniture of the XIIIth century in existence, but we know it was highly and beautifully decorated. The woodwork is simple carpenter's joinery with a character all its own from the straight-forward solution of the difficulties which the carpenter experienced in the course of his work. There are some coloured drawings of furniture of the XIIIth and XIVth centuries in the library, and some interesting reading on the subject in "Furniture and Woodwork," a book published some thirty years ago by Mr. Hungerford Pollen. Professor Lethaby's suggestive essay in the published volume of the Arts and Crafts Society is instructive and inspiring. These are all in the museum library, to which ready access can be got for a trifling sum. Professor Lethaby recommends the study of pictures in old manuscripts if we wish to furnish our rooms properly. I think a right understanding of furniture can only be arrived at by studying the earliest work, before the principles which govern its construction became lost sight of in the complicated work of later centuries. There is a fine collection of chests or boxes in the museum; the earliest are of the XIIIth century—one Italian, one French; the Italian one has a bowed top, the top and front are divided into six panels by thin bands of patterned metal; each panel is decorated with gesso-duro ornament on alternate red and black backgrounds; the French example is more substantial and less ornate, its decoration consists of handsome wrought-iron scroll work with which the front and sides are well covered. The only English wookwork of this date in the museum, besides fragments of carving, is an oak door. It is a lively piece of design worked in the solid in a primitive manner, with charming little beasts and birds and flowers carved with much simple skill. The chests were used for various purposes; they served indifferently as tables or seats; many of them are inlaid on top for chess, the players sitting at and on either end. They were used as portmanteaus when their owners went on their travels, being slung on horses. They were also used to keep the tapestries in which served as wall decorations on state occasions. These were usually of cyprus-wood decorated with incised work in

scrolls or geometric patterns; they were not so substantial as the dower chests.

The early chests are dependent both constructively and for their ornament on the branching scrolls of iron work, of which the French example above mentioned is a fine specimen. There are many of these chests still to be seen in country churches. Some of them are very richly carved all over like that at Dersingham, Norfolk, a cast of which is in the English woodwork section; the front has the emblems of the four evangelists and a border of birds and rosettes; this is of the XIVth century. There is in the French section a small chest of this date showing two mounted knights in all the furniture of war, tilting; and there are both English and foreign examples of the fronts of chests carved with a perfect gallery of knights and ladies, showing on one plane the whole story of St. George and the Dragon. Much of this carved work was originally richly coloured. I read in Mr. Pollen's book that Henry III. directed that "the King's great chamber at Westminster be painted a green colour like a curtain, . . . and that the King's little wardrobe should be painted a green colour to imitate a curtain." The wardrobe of those days was a special room fitted with hanging closets for clothes, and for spices, etc. In the XIIIth century chests began to be furnished with panelled wooden backs and arms. Persons of quality used tapestry screens or dorsals at the back and sides to shelter them from draughts. It was this desire to give honour to individuals which created the invention of the separate chair. A survival of the chest and dorsal is still to be seen in village inns in the high-backed and sometimes roofed-in settles. I have just mentioned the introduction of chairs. You will notice in nearly all the early specimens at the Museum the great height of the seats from the floor. Was this to give extra dignity or to keep the sitter's feet above the draughts, etc.? Other early decorations of the chest are more suitable to modern furniture of a simple and serviceable kind than those above mentioned. They consist in emphasising the constructive features, beautiful patterned dove-tailing at the angles, the projecting lid or back with purled edges or gouge cuts in patterns or simple diaper work; or instead of being made of six planks of wood the sides and ends are framed and panelled, the framings being elaborately chamfered somewhat like the modern work of a wheelwright. Cupboards were originally panelled closets and sideboards called dressoirs originated the name of cupboard. The livery cupboards were the larders of the Middle Ages; a cloth was laid on the top—probably a coloured one powdered with worked flowers—and narrow shelves rose in steps at the back for keeping the pewter and other serviceable utensils on. The tables at this time were long boards hinged down the centre, laid loosely on folding trestles. There is a late and highly ornamented example of this in the Italian court on the west side, the top and legs being beautifully inlaid in geometric patterns with ivory. Note also the ivory inlay on the chest opposite to it which is of the XVIth century. I refer to the floriated panels which, instead of being a skilled imitation of Nature as in the later work, is rather a successful interpretation of it. All the bedroom furniture of the early period was of panelled wood, linen chests, settles, cupboards, and beds; in the last, printed or tapestried hangings played an important part in the design.

The Italians regarded furniture and woodwork as a fair field for decoration and their genius left its air of distinction upon it. Their work of the XVth century is full of interest as the type of later developments in all countries. The chests of this and the next century are very fine and there is a representative collection at the museum. Some of them are elaborately shaped and gilded, the fronts and ends decorated with gesso-duro showing brightly-coloured pictures of marriage ceremonies and classical stories. This is the sculptor's art of the time of Michael Angelo and Benevenuto Cellini which furnished the gorgeous palaces of Popes and nobles. Scholarship has got the upper hand of the arts of construction, carving, and painting. More beautiful, I am inclined to think, because more useful and less frail, are the exquisite inlays of this period to which I have already alluded. There are quite a number to be seen, showing what an immense output there must have been. Most of the pieces are inlaid marquetry of ivory and coloured woods low and rich in tone, decorated inside and out, the inside no less beautifully than the out. The inside is fitted with little drawers and pigeon holes for jewels, money, and papers. Other chests of this period are lightly incised with a pattern, the excavated parts being filled with coloured mastics. One of these shows the judgment of Solomon on the front. Others again are quite plain without, like the XIIIth century chests, ornamented with metal work of more elaborate workmanship than the early ones. The metal work consists of very intricately pierced and chased lock plates, hinges within and without, handles at the ends, corner clamps, and bosses which are merely ornamental. In a few cases highly coloured textiles are placed beneath the metal showing through the piercings. The Italians are, however, outdone in richness of effect in this class of decoration by the Spaniards and Portuguese whose work may be seen in the gallery opposite the refreshment rooms. A phase of decoration in which the museum is not so rich is that more elaborate intarsia, inlaying with coloured woods whole pictures of figures and other subjects. There is a marvellous example from Augsburg of the XVIth century which is representative although it was an essentially Italian art. It is to be seen at its best in Bergamo in the decoration of the choir stalls of Sta Maria Maggiore, and at its worst in the late Dutch examples.

I cannot attempt to deal with the well-known periods of English furniture. I am afraid it is a fact that very little furniture was made in this country; most of it came from abroad, at least till after the Wars of the Roses. Later, again, most of the best English furniture, so-called, was made by Dutchmen in England or imported from Holland. And the Huguenots were responsible for a great deal. It is possible, I suppose, that inferior wood and workmanship is not confined alone to our own times, and that only the best has survived to our day. Anyway, it is disappointing that English work is not better represented. It seems to me that the good tradition of early work was more faithfully carried on in this country than any other.

If I may digress, I should like to add that I think it is to the early type that makers of the best modern furniture have turned. It allows more scope for the imagination and less for the machine than the later work of the Renaissance. Good furniture can never be made by machines, human or mechanical, therefore at the present time it cannot be procured at shops; one has to find individual craftsmen who make it themselves and treat them as we would that our clients would treat us. That is to say, they must not be asked to do impossibilities. Woods and their natures, and even the stock which they may have seasoned and in hand, must influence their work more than we may suppose. The labour of a thoughtful man following his craft is of much more value than of the artisan working from a drawing which we have made ourselves. We may conceive the furniture for the room, but intimate co-operation is necessary to bring it to a successful issue. The beautiful furniture now being made retains the simplicity that characterises all good work, often showing great ingenuity of construction and sometimes very elaborately decorated inlays or paintings. The experiments of William Burgess, Wm. Morris, Burne Jones, and Maddox Brown are bearing fruit, I believe, in a school of English furniture founded in reason and good workmanship.

No part of the museum is more interesting to me in itself than the ironwork gallery. There is so much variety; its contents show such a fascinating combination of simple ingenuity and intricate design. Where else can you see such door handles and knockers? or such locks and keys? so much mechanical skill allied to beauty of form and finish? The simplest rushlight-holder stuck in a log of wood is something more than a curiosity. Candlesticks in every form abound; really useful things down to great architectural corona and candelabra in the court below; German and Byzantine work of the XIth century; Italian Gothic of the XIIIth, and Renaissance of the XVIth and XVIIth centuries; window gratings and balconies; fire backs and fire dogs and irons, black or polished; hour glasses and vanes painted in gay colours. Smiths' work in all its branches is interesting, especially applied to architecture. To have seen casting, puddling, and welding, is to ever afterwards have an interest in the material; to recognise its fitness in certain positions and in certain forms.

Ironwork forms so important a part in building it is a pity it is not more studied; if it were, what still exists of the XVIIIth century would be more valued and cared for. The lamp standards on Waterloo Bridge would not have disappeared and gas and electric standards would not be of the ugly and unsuitable type to which we are accustomed.

I suppose it is impossible for a mere man to know anything about the practical side of embroidery and needlework. Nevertheless, I think the English architect has a natural bent for the more homely arts. A chair covering, a carpet, or the tiles on a hearth mean more to him than, for instance, such small things do to a Frenchman. As a friend said to me the other day, "abroad they have no fireside architecture," asking why? he replied, "because they have no fires!" And it is no doubt true that what we lack of continental orderliness and stately architectural effect in our streets, we endeavour to make up for by a comfortable homeliness in our houses. I do not say that this is the better way, but it certainly adds to the pleasures of life to form a taste for the lesser arts. There is no more accessible place in London for the study of colour than the museum among the relics of the great times of early weaving embroidery and appliqué work. Not only should we find the gems of the Middle Ages and of the later work of the Huguenots, both akin to our instincts and traditions, but there is the richness of the East in Indian and Persian work. The beauty of the Eastern work does not invite competition or imitation, but it lets us into many secrets of colour, the beauty of elaboration when all is fresh and inspired, and the value of patience in any work of art. Here, as in any other study we may undertake at the museum, we shall be forced to the conclusion that the machine is impossible as a creator. No machine could have done these things, nor any man working as a machine. Such a person works against time, whose endeavour is to obliterate the gradations and texture of hand work done from day to day.

The mere fact of hand weaving being nowadays so uncommon a practice as to be almost though happily not quite extinct, tempts the architect into designing his own hangings and church furnishings. When this is necessary it is the type that matters. Often the result is a dead-alive exercise in some "style" lacking the charm and the spontaneity of the pre-Raphaelite work and the beauty of colour and texture of the more staid and scholarly work of the XVIth, XVIIth, and XVIIIth centuries. The design is too often executed by machines, or by ladies, accomplished in all the resources of stitchery, with machine-like accuracy.

We can become accustomed to good combinations of colour in the Italian Court among the majolica. In the Eastern Section amongst coloured tiles the pottery, china, and porcelain. I think, too, the water-colour rooms have a value for architects. The drawings of Prout, Roberts, Cattermole, Turner, and Hunt are something more than the architectural draughtsmanship of the present day. No representation of architecture seems to me complete without its colour and texture; any other kind of drawing is a make-shift, and as a rule a photograph is preferable.

In one of the windows in the museum the late Professor Moody has put a fine quotation with which I must close. "The wisdom of a learned man cometh by opportunity—How can he get wisdom that holdeth the plough?—He giveth his mind to make furrows and is diligent to give the kine fodder. So every carpenter and workmaster that laboureth night and day: and they that cut and grave seals: the smith also sitting by the anvil, and considering the iron work. The potter sitting at his work and turning the wheel about with his feet, who is always carefully set at his work.—He fashioneth the clay with his arm and boweth down his strength before his feet:—All these trust to their hands: Without them cannot a city be inhabited: They shall not be sought for in publick counsel, nor sit high in the congregation: They shall not sit on the judges seat nor understand the sentence of judgment:—and they shall not be found where parables are spoken. But they will maintain the state of the world and all their desire is in the work of their craft." I have taken up too much of your time and leave the mass of the subject to you untouched upon.'

Mr. W. A. Forsyth, who opened the discussion, said he was in agreement with Mr. Curtis Green. The subject was a welcome one, and should lead to a better understanding of the purpose

of an architectural museum, and to a more suitable direction of its study. He apprehended that the subject was treated from the educational point of view, and it must be admitted that the South Kensington Museum formed an essential part of an architect's training. Mr. Curtis Green had said that only present day craftsmen could thoroughly understand the objects at South Kensington Museum, but he did not suggest how the many hundreds who were not craftsmen might best benefit by their study. Furthermore, as their study was surely to be taken on the comparative basis, there was, he thought, much to be wished for in the fuller explanation of the exhibits, and suggested as an instance the desirability of appending scales to photographs, sketches, etc., with notes of the history and sociology, together with a list of reference works and information where such could be found. In this way the intelligent grasp of the subject would be facilitated and help to kindle that enthusiasm Mr. Curtis Green spoke of. In regard to that gentleman's remark "that hand and mind were trained in the same school under master workmen having for models contemporary work," this was, the speaker thought, as sound and applicable to-day as it ever was, and the South Kensington Museum had, he ventured to think, acted wisely in its selection of modern work. He thought that the limited extent of the British examples formed one of the weak spots in this museum, and noted that there were no examples of such typical works as mediæval stone vaulting, colour decoration, brick, flint, or plaster work, and apart from these such a national craft as Sheffield plate was represented by but one single case. He had always found this building trying from the "headache" point of view, and attributed it in great measure to the unsatisfactory nature of the light, especially at night, and he thought the open courtyards and exterior spaces might with advantage be used for exhibition purposes. He agreed with Mr. Curtis Green in advocating the study of early forms in furniture, and referred to the specimens of modern work on view at the last Architectural Association Conversazione by Messrs. Bransley and Gimson as showing the advantage of such study. He thought the two panelled rooms in the South Kensington Museum were very valuable because giving a "complete" idea of English decoration and furniture in earlier times. The objection to machine-made articles was, he thought, right within certain limits. In concluding he asked leave to paraphrase Mr. Curtis Green's statement and make it read thus: "To understand the simpler elements is to be in sympathy with our work."

Mr. F. Lishman thought that the smaller objects might be studied to better advantage than the larger, being more self-contained, and depending less upon their setting and surroundings. Some of the Italian and French mediæval "ivories" were instanced in this connection, and examples from other sections of the museum also touched upon, with special reference to their colour and decorative—even structural—suggestiveness for work on a large scale, whether secular or ecclesiastical. A satisfactory study of the ironwork on exhibition was impossible, owing to the extremely bad lighting in the galleries where it is nominally on view. The Indian and Eastern sections deserved to be better known, for their contents offered a rich field for study.

Mr. T. Fyfe, in a brief speech, spoke of the apt comparison between a museum, and a library without a librarian, referred to by Mr. Green. Regarding the casts in this building, he thought a knowledge of the materials forming the original from which casts were taken was essential, otherwise they might prove a source of deception. It was, he thought, a good thing to guess at the materials first and afterwards to prove or disprove these by making inquiries. He considered that some of the exhibits in the present building—for example, the Byzantine ivories, could not properly be seen; and hoped that this might receive attention in Sir Aston Webb's new building.

Mr. A. H. Belcher said he knew very little of the South Kensington Museum, and regretted it; he trusted that Mr. Curtis Green's paper would be printed, for it was by open discussion in the public press that a great many desired improvements were effected with satisfaction to all parties.

Mr. H. Gregory Collins (chairman), on behalf of the meeting, expressed his gratitude to Mr. Curtis Green for his paper, especially the practical side. Personally, he was not quite in agreement with Mr. Curtis Green as to the necessity of technical knowledge, for the museum had distinctly another side to it, and that was with regard to inspiration. He regretted the paucity of English work, although the beautiful examples of French must, he thought, be regarded as in some measure making up for this defect. The study of the gradual change from French Gothic to Renaissance was a matter of great interest to him, and doubtless many others. In concluding, he much appreciated the paper as being so exhaustive, a view fully shared by those present.

Mr. W. R. Lethaby, as Special Visitor, then summed up the discussion.

He prefaced his remarks by saying he held no brief for the South Kensington Museum, though possibly he had received more kindness at their hands than the usual visitor, but this was due to the frequency of his visits, he felt sure, more than anything else. At one of the late Mr. William Morris's lectures he remembered him saying that the South Kensington Museum had been built for him (Mr. Morris) and this remark showed the measure of his appreciation of the museum as a factor for education and inspiration. The speaker congratulated Mr. Curtis Green on the nice spirit and good taste displayed in his written paper, the reading of which had given much pleasure to him. He advocated the careful study of old manuscript pictures as tending to a better understanding of the principles underlying the design of old furniture, a study well worth while even though it were not undertaken with the view of immediate design for practical purposes. Mr. Lethaby said that he had known the South Kensington Museum for twenty-five years and had come to the conclusion that by a careful selection by one competent to judge, such an one might derive almost as much good from a tour of this building as by an actual tour in the country from which the examples came. A matter which had recently impressed him was the considerable number of mediæval sculptures in the museum. The point he most desired to emphasise was the need of concentration of which the late Mr. William Morris formed a conspicuous example. This master of crafts got his works up, so to speak, in passions, the last six or seven years of his life being concentrated upon printing, and to this end he exhausted every source of information and suggestion. Mr. Morris's life, as evidenced by the number and variety of his works, seemed to consist of, figuratively speaking, a series of giant-like gulps, each taking from four to six years. The whole of these times being given up entirely to the utmost concentration upon the particular craft in hand. The speaker urged the necessity of such concentration as leading to results which work based on a general scale fails to secure. He believed in the use of a museum for stimulating "our sense" of beauty, but old buildings he regarded as the best possible means of inspiration. He believed in no system that had for its object the "teaching" of beauty, that, in his opinion, was impossible; what could be done, however, was to teach subjects and matters which would lead up to an appreciation and understanding of beauty and after that leave the rest to spontaneity. A matter of great regret to him was the sad waste of energy occasioned by the making of individual sketches based upon no organised system, and he thought there was great need of some such system being inaugurated, having for its object the collection, classifying, filing for reference, and such like of sketches, measured drawings, etc., as was done in certain departments in the British Museum. The Architectural Association *Sketch Book* had in this way done a great work for two generations, and he quoted it as an example of successful effort to a definite end. He would suggest that the Architectural Association might, seeing what fine new premises they now had, consider the matter. Perhaps the best advice he could offer those present was to look at things frankly and simply with "our own eyes," and not go to a museum with preconceived notions, as that was fatal to a proper appreciation of the contents of such a building. Lastly, he wished to say that the want of appreciation of a museum should not be a source of contention provided the person or persons concerned had an honest enthusiasm for something else. There must be a practical side to the community, and there was no doubt that too great an interest in ancient works tends to militate from success in more practical art for to-day.

Mr. Curtis Green briefly replied, and the meeting terminated with a hearty vote of thanks to him and the Special Visitor.

ARCHITECTURAL SOCIETIES.

GLASGOW ARCHITECTURAL ASSOCIATION.—At an ordinary meeting of the Architectural Association, held in the Rooms on Wednesday, the 16th inst., Mr. J. J. Gillespie, delegate from the Edinburgh Architectural Association, read a paper, illustrated by drawings and lantern-slides, descriptive of English towers and spires. Mr. Gillespie went closely into detail and sub-division, illustrating central and western towers of Norman Transitional and Gothic work, and similarly towers with spires and lanterns. It was announced that the next paper would be given on December 16 by Mr. Bromhead, on "Registration of Architects."

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.—At the opening meeting of the Leeds and Yorkshire Architectural Society, at the Queen's Hotel, Leeds, on Thursday evening, the 17th inst., the President, Mr. G. Bertram Bulmer, in the course of his address, had some interesting and critical comments to make on Leeds architecture. Mr. Vickers Edwards, in proposing a vote of thanks to the President for his address, expressed the view that the Leeds New Markets might have been erected for less money, with due regard to the interests of the ratepayers. He thought that every man who entered upon the noble profession of an architect should be registered. Mr. W. H. Thorpe, of Leeds, in seconding the motion, mentioned that he was an old member of the Society, and had served on its Council for twenty-eight years. He praised the good work being done for architecture by the Leeds School of Art, and commented upon the excellent positions gained by the Leeds candidates in the professional examinations. In passing, too, he had a good word for the Leeds Arts' Club. Earlier in the evening the President distributed a series of prizes competed for by associates of the Society. Mr. Ralph Thorpe was awarded a silver medal and 5*l.* for some measured drawings of Hemingborough Church, near Selby. A prize for drawings, showing the construction of an entrance hall and staircase, was won by Mr. Martin S. Briggs. Prizes for design were awarded to Mr. Godfrey L. Clark (first), and Mr. J. Crust (second); and prizes for sketching were given to Mr. Martin S. Briggs and Mr. S. R. Wyvill (extra). The prize work was on view at the meeting. As usual, the annual meeting partook of a social character.

ARCHÆOLOGICAL SOCIETIES.

BRITISH ARCHÆOLOGICAL ASSOCIATION.—The session 1904-5 was opened on the 16th inst., at 32, Sackville-street, Piccadilly, the President, Mr. R. E. Leader, in the chair. A lecture was given by Mr. John Garstang on the Roman fort at Brough, and the results of recent excavations on the site. The lecture was illustrated by a large number of photographic views and plans exhibited by lantern light. The Roman fort at Brough, said the lecturer, was a unit in the general scheme of defence in the north and west of Britain, which belongs, in the main, to the early and middle IInd century. One well-defined Roman road joins ancient Brough with the Roman sites at Buxton (Aquæ) to the south, and Dinting (Melandra Castle) to the north. The Roman fort (castellum) and the Roman camp (castra) are not to be confounded, although there are points of resemblance between them sufficient to warrant a conjecture that both were based upon a common general plan. Both were regular four-sided enclosures with gates and ways and buildings always symmetrically placed. But the camp, whether of a temporary nature, an earthwork thrown up on the march, destined, perhaps, to be evacuated after a single night, or a permanent fortress, was in either case planned for a large number of troops, a whole legion or more, and consequently covered many acres of ground. The Roman fort, on the contrary, was definitely small and strong, the permanent quarters of a garrison. Its area was commonly four to six acres; in some cases it might be so small as three or so large as eight. The number of soldiers who might be quartered within it is not known, and necessarily varied in different places; but, judging from inscriptions, a cohort

of auxiliaries would commonly constitute the garrison. Mr. Garstang then proceeded to describe the general aspect and purpose of a Roman fort, together with the interior buildings, so far as their uses are at present known. It is hoped the excavations recently undertaken at Brough may result in clearing away the uncertainty which exists as to the use of certain of these buildings—such as the large building usually found about the centre of the enclosure, generally called the Prætorium. The fort at Brough was one of the smaller forts, and is situated a short distance from Hope station on the Dore and Chinley line through Derbyshire. The excavations made for the Derbyshire Archæological and Natural History Society in August, 1903, were of a preliminary character, but, they have, nevertheless, revealed some very interesting features, which prove the plan of the fort to be nearly a regular four-sided and walled enclosure with rounded angles, and, seemingly, a gateway about the middle of each side. One feature of particular interest disclosed was an underground chamber about 8 ft. long by 5 ft. wide at its narrower end, but about 7 ft. wide at the opposite end. This chamber showed unmistakable evidence of having been altered at a period subsequent to its first formation, the upper part of the wall at the narrower end having been cut away to insert a flight of steps, which, about half the height from the bottom, are built up against the wall, and are formed of the stones taken out of the upper part. A very interesting and important discovery was made during the excavation of this pit, or chamber, in the shape of an inscribed tablet. Although the tablet was in four fragmentary parts they practically presented the whole of the essential part of the text, which Mr. F. Haverfield renders as under:—"In honour of the Emperor Titus Aelius Hadrianus Antoninus Augustus Pius, Father of his country (erected by) the First Cohort of Aquitanians, under Julius Verus, Governor of Britain, and under the direct orders of Capitonius Fuscus, prefect of the cohort." Only a few days before these fragments were unearthed an inscription of Antoninus Pius was found in the river Tyne, at Newcastle, which also bears the name of Julius Verus. The discovery is the more valuable because hitherto Verus had not been known to have governed Britain. The photographic illustrations and the capital perspective and "bird's-eye" views, showing presumed restoration of Roman forts, gateways, and bastions, prepared from authentic details, enhanced the interest of the lecture. Dr. Birch, Mr. Forster, Mr. Emanuel Green, Mr. Gould, Mr. Kershaw, and others, took part in the discussion which followed.

Illustrations.

THE CARTWRIGHT MEMORIAL HALL, BRADFORD.

WE published a few weeks ago an illustration of what may be called a corner of this building, a portion of it shown in a drawing that had been exhibited at the Royal Academy.

We give now a plan of the building and a view of it as a whole, as well as a view from one end showing the side of the porch and loggia over it, and an interior view showing the main staircase.

The building was the subject of a competition which attracted a good deal of interest, and in which the design of Messrs. Simpson & Milner Allen, now carried out, was selected. The Hall was to be, as our readers may remember, a memorial museum and art-gallery; forming a monument to Cartwright, an eminent Bradford manufacturer who had been a benefactor to the city.

NEW ORGAN AND CHANCEL, KINGS WEIGH HOUSE CHURCH.

THE present structure, built about fourteen years ago from the designs of Mr. Alfred Waterhouse,* is an oval building, with an iron and plastered ceiling domed up to the central oval ventilator. The gallery, which ran right round, stopped against the old organ case, which occupied the end wall-space. The design of the upper wall, above the gallery, was based on a system of niches alternating with windows.

In forming the new chancel the three end niches were opened up, and a new wall carried straight across, faced with terra cotta and pierced with three windows corresponding with the opened niches, was built as a chancel end.

Part of the existing gallery was cut away on each side, and the new organ case, in two portions, was erected so as to form a chancel enclosure. The strong enclosing line of the terra-cotta chancel end, and the projecting cornice over, were designed to emphasise the square form of the chancel.

Some slight alterations were effected in the pulpit, a reading-desk, and choir seats were placed at the sides of the chancel, in front of the organ case. Seats for the minister and elders were placed against the end wall, behind the Communion table; and above these seats a space was left for a hanging, or tapestry panel. The scale of the woodwork detail has been kept as far as possible in harmony with that at present existing.

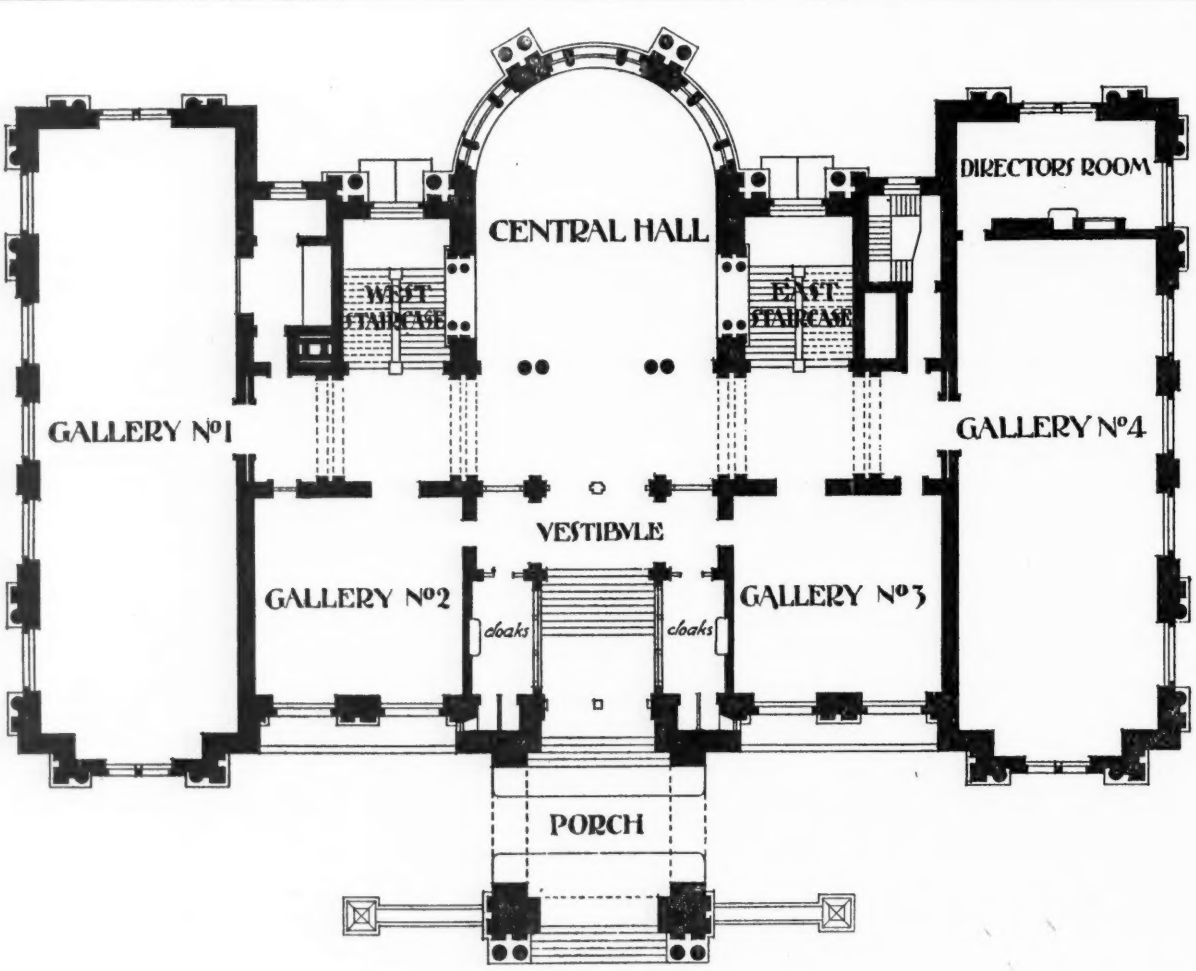
A niche for a font was formed in front of the left-hand organ case, and the base of this, as well as the pulpit base, the reading-desk base, and the floor and steps of the chancel up to the choir seats, was finished with marble of various kinds.

The new organ case and all other new woodwork was executed in Austrian wainscot oak.

The contractors for the entire work were Messrs. John Shillitoe & Son. The sub-contracts were as follows:—Terra-cotta work, Messrs. Burmantofts (Leeds Fireclay Co.); marble work, Messrs. Galbraith & Winton (Glasgow); electric lighting and pendants, Messrs. Thompson, Ritchie, & Co.; heating and ventilation, Messrs. G. F. Haden & Son; upholstery, Mr. Thomas Hall.

The organ is by Messrs. Henry Willis & Son. Mr. R. Anning Bell designed the stained glass windows of the chancel end, and they were executed under his supervision by Mr. Arthur J. Dix. Mr. John J. Burnet, A.R.S.A., is the architect.

* An exterior view of the church was published in our issue of January 18, 1890.



GROVND PLAN

Cartwright Memorial Hall, Bradford.

WOOD CARVING BY STUDENTS OF THE ROYAL COLLEGE OF ART.

THIS illustration shows some of the work done by students of the Royal College of Art, and recently exhibited at South Kensington. Each of the panels are, in their way, fine examples of carving in wood; there is no straining after originality in design, but each student has attained freshness and sound decorative feeling. The hunting scene shows movement and rhythm; we like, too, the rendering of the bear at the mouth of the cave; the armorial panel is not quite finished; the mantling in this, and the foliage in the pilasters, is vigorously treated, showing far more life than we are accustomed to in work of this class nowadays. The horizontal panel also shows the result of thoroughly good training in rendering in conventional and suitable ways natural objects.

No. 1 panel is by Mr. A. E. Payne; No. 2, by Mr. E. Walker; No. 3, by Mr. J. H. Morton; No. 4, by Mr. W. Wetherell; No. 5, by Mr. W. Wetherell; No. 6, by Mr. A. H. Livens; No. 7, by Mr. J. H. Morton.

COMPETITIONS.

CARNEGIE TECHNICAL SCHOOLS COMPETITION.—We have received the programme, which forms almost a book, of the competition (which has just been decided) for the selection of an architect for the Carnegie Technical Schools, to be erected at Pittsburgh, Pennsylvania, U.S.A. The scheme is an immense one, dealing with a site of the area of 32 acres, though of course a large proportion of this land will not be actually built upon. Trustees of the scheme were appointed, who in turn appointed a Committee to carry out the architectural competition. The general features of the scheme may be best explained by the following extracts from the Programme:—

"For the purpose of selecting an architect the Committee have established this competition, and have engaged Professor Warren P. Laird, of the University of Pennsylvania, as their adviser in the preparation of its programme and the making of the awards.

Five architects and architectural firms have accepted the invitation of the Committee to submit designs in the competition, for which service they will be paid 1,000 dollars each. They are Messrs.

Carrere & Hastings, New York.
Frank Miles Day & Brother, Philadelphia.
Mr. Cass Gilbert, New York.
Howells & Stokes, New York.
Mr. George B. Post, New York.

The competition will be open also to all other architects whose experience and capacity in the design and execution of large work may warrant the Committee in extending to them an invitation to take part. Architects desiring to enter are therefore requested to provide the Committee with information as to their professional work upon blanks to be had upon application to the Director, Arthur A. Hamerschlag, 313, Sixth-avenue, Pittsburgh, Pa.

Also all other communications relating to the competition are to be addressed to the Director as above.

The competition will be restricted to invited architects, selected as above.

Five awards of 1,000 dollars each are offered to competitors, other than those who are named above, and will be paid to the five architects whose designs stand highest in merit, one of these five being assured in any event to Allegheny (*sic*) County architects. These awards will be paid as hereinafter provided.

The prize of the competition will be the commission to design and supervise the erection of the buildings required for portions of the Administration and of other Groups, as hereinafter stated, and this prize will be awarded to the author of the design premiated, as hereinafter provided.

The required buildings may be broadly classified by departments, as follows:—

I. Administration.
II. School of Applied Science.
III. School for Apprentices and Journeymen.
IV. Technical School for Women.
V. School of Applied Design.
VI. Service.

The order in which these departments are named has been adopted only for convenience in designation, and each will be known by its number, as a 'Group,' whether one or more buildings are required for it."

The competition has been won by Messrs. Palmer & Hornbostel of New York, the second place going to Mr. George B. Post, one of the especially invited and paid competitors; and the third, fourth, and fifth places, each conveying an award of 1,000 dollars, to Messrs. Wood, Donn, & Deming, with Corbett & Pell Associated (Washington and New York); Gram, Goodhue, & Ferguson (Boston and New York); and Newman & Harris (Philadelphia), respectively. The highest rank among Alleghany* County Architects, to whom was assured an award of 1,000 dollars, was taken by Mr. T. E. Billquist of Pittsburgh.

CHURCH, GLASGOW.—Mr. John M'Intyre, of 8, Brunton Place, Edinburgh, has been awarded the first premium for his design of the new St. Paul's Church, Glasgow, which is to be erected in John-street, with frontages to Little Hamilton-street and Margaret-street.

* In the second communication we received, this name is again spelt "Allegheny." Whether this is a clerical error or a new spelling, we cannot say. It is "Alleghaney" in our atlas.—ED.

BOOKS RECEIVED.

PORTLAND CEMENT FOR USERS. By the late Henry Faïja. Fifth edition, revised by D. B. Butler. (Crosby Lockwood & Son. 3s.)

PICTURESQUE MIDDLESEX. By Duncan Moul and R. H. Ernest Hill. (F. E. Robinson & Co. 6s.)

CITY DEVELOPMENT: A STUDY OF PARKS, GARDENS, AND CULTURE-INSTITUTES. By Patrick Geddes. (Geddes & Co., Edinburgh; and the St. George Press, Birmingham.)

CASSELL'S CYCLOPÆDIA OF MECHANICS. Edited by Paul N. Hasluck. Fourth series. (Cassell & Co., Ltd. 7s. 6d.)

A SYNOPSICAL MONOGRAPH OF THE ABBEY OF FÉCAMP. By J. Atwood Slater. (Sprague & Co.)

Correspondence.

ST. MATTHEW'S, FRIDAY-STREET.

SIR,—You may like to supplement your notes, in your issue of the 12th inst. (page 483), on the subject of St. Matthew's Church, Friday-street, E.C., by the following facts:—

A block of commercial buildings was erected upon the site in 1886, from my designs, when I introduced a portrait of Wren into the carving over the porch, and had the following inscription cut upon the south flank wall of the new building:

"THE SITE
OF THESE BUILDINGS
WAS FORMERLY OCCUPIED
BY THE PARISH CHURCH OF
ST. MATTHEW, FRIDAY-STREET,
FOUNDED
BEFORE THE YEAR 1322,
DESTROYED BY
THE FIRE OF LONDON 1666,
REBUILT BY
SIR CHRISTOPHER WREN,
AND TAKEN DOWN IN 1885,
WHEN THE PARISH
WAS UNITED WITH THAT OF
ST. VEDAST, FOSTER-LANE."

DELISSA JOSEPH.

THE JOINERY TRADE.

SIR,—I think the present state of depression in the joinery department of the building trade calls for some movement to alleviate the distress through lack of work. Why is it that so many hundreds of thousands of pounds are spent annually on the imported foreign rubbish, wrongly named joinery, when an infinitely superior article, worthy of the name, can be made here in "England" quite as cheaply? I have done it over and over again. The joiner of these days is not the man of thirty or thirty-five years ago, when he was, if not bitterly opposed to, at least exceedingly suspicious of, machinery; he now recognises it as a power come to stay, and to make further progress yet, and is willing to follow it up; in fact, he cannot help himself if his work is properly put to him. Were our builders to utilise their machinery to its full capacity, and by up-to-date methods, I am certain from long experience that this foreign stuff would, ere long, become as extinct as the dodo.

Neither would the builder be disposed to put his work out to some trade joinery works, but put the profits into his own pocket. I have had a very intimate connexion with several of these joinery works, and, in the majority of cases, the work is rushed along at fever heat. Client after client clamouring for their goods, this job is put aside to push that, and that to push another, causing, in numerous instances, mistakes and an appalling waste of both labour and material; and, excepting in a few instances I could mention, the work is done per piece, underpaid, or by young and inexperienced hands, scamped to an alarming degree, oftentimes (as I have known) to be condemned by the architect or clerk of works. In a well-ordered builder's shop and mill these things could not occur; and, as before observed, if a thoroughly up-to-date method is adopted, and the machinery impressed for all it is capable of, the change would be wrought, architects and their clients benefited and pleased, the builder himself satisfied, and the rank and file made happy with work, where now there is none. J. C. W.

BUILDING SOCIETIES' STATISTICS.

THE Chief Registrar of Friendly Societies has compiled his usual abstract, which has been issued this week as a Parliamentary Paper, of the annual accounts and statements of societies for the year 1903. It appears from the figures that the numbers of incorporated building societies in the counties of the United Kingdom are as follow:—Bedfordshire 15, Berkshire 14, Buckinghamshire 11, Cambridgeshire 11, Cheshire 53, Cornwall 7, Cumberland 16, Derbyshire 23, Devonshire 29, Dorsetshire 12, Durham 104, Essex 39, Gloucestershire 29, Hampshire 49, Herefordshire 7, Hertfordshire 15, Huntingdonshire 1, Kent 57, Lancashire 329, Leicestershire 27, Lincolnshire 25, London 416, Middlesex 29, Monmouthshire 16, Norfolk 12, Northamptonshire 19, Northumberland 64, Nottinghamshire 17, Oxfordshire 3, Rutlandshire 1, Shropshire 8, Somersetshire 34, Staffordshire 56, Suffolk 5, Surrey 28, Sussex 36, Warwickshire 34, Westmorland 6, Wiltshire 9, Worcestershire 13, Yorkshire 93, and Berwick-upon-Tweed 1—total for England, 1,773; Anglesea 1, Brecknockshire 2, Cardiganshire 1, Carmarthenshire 9, Carnarvonshire 11, Denbighshire 3, Flintshire 1, Glamorganshire 77, Merionethshire 1, Pembrokeshire 2—total for Wales, 108; Aberdeen 10, Argyle 1, Ayr 7, Banff 2, Clackmannan 1, Dumbarton 7, Dumfries 2, Edinburgh 13, Elgin 2, Fife 15, Forfar 9, Inverness 1, Lanark 35, Linlithgow 2, Nairn 1, Peebles 1, Perth 2, Renfrew 7, Roxburgh 1, Selkirk 3, Stirling 7, Wigtown 1—total for Scotland, 130; Antrim 37, Armagh 1, Cork 4, Down 1, Dublin 26, Limerick 1, Londonderry 24, Louth 2, Tyrone 1, and Wicklow 1—total for Ireland, 98; total of incorporated societies for the United Kingdom, 2,109. To this total have to be added 62 unincorporated societies, all in England, making a grand total of 2,171.

The number of members enrolled in the 2,171 societies is 601,204.

The total receipts of the societies during the last financial year amounted to 40,734,866*l.*

1,665 out of the 2,171 societies made advances on mortgage, and the amount so advanced during the year was 9,959,555*l.*

The liabilities of the societies at the time of making up the balance-sheets were—to the holders of shares, 38,312,729*l.*; to depositors and other creditors, 24,161,484*l.*; undivided profits, 3,836,273*l.*

The assets, on the other hand, were:—Balance due on mortgage securities (not including prospective interest), 51,396,980*l.*; amount invested in other securities and cash, 14,800,247*l.* Balance deficits—in England and Wales, 113,038*l.*; in Scotland, 221*l.*; in Ireland, nil.

The incorporated societies in the County of London have 117,845 members; their receipts during the year amounted to 5,768,165*l.*; the amount advanced on mortgage during the year aggregated 2,839,763*l.*; the liabilities were—to holders of shares, 9,202,460*l.*; to depositors and other creditors, 3,225,985*l.*; and the amount of undivided profit was 766,560*l.* Assets.—balance due on mortgage securities (not including prospective interest), 12,245,934*l.*; other assets, 893,523*l.* Balance deficits, 55,548*l.*

The following figures indicate the total receipts during the last financial year of the individual building societies with over 1,000 members each:—Wolverton (Bucks.) Permanent Benefit, 1,026 members, year's receipts, 20,650*l.*; Cumberland Co-operative Benefit, 2,342, 131,997*l.*; Derbyshire Permanent, 2752, 79,994*l.*; Barnstaple Permanent Mutual Benefit, 1,388, 12,243*l.*; Darlington Equitable, 1,166, 45,502*l.*; Industrial and Provident Permanent, Sunderland, 1,147, 42,867*l.*; Sunderland Working Men's Permanent, 1,401, 50,898*l.*; Durham and Yorkshire, Darlington, 1,876, 59,335*l.*; Bristol, West of England, and South Wales Permanent, 1,506, 171,206*l.*; Cheltenham and Gloucestershire Permanent, 4,719, 206,590*l.*; Isle of Thanet Permanent Benefit, 1,520, 55,576*l.*; Sheerness Permanent Benefit, 2,209, 80,208*l.*; Burnley, 5,066, 304,377*l.*; Chatham Permanent Benefit, Liverpool, 1,095, 29,107*l.*; Queen's Benefit, Manchester, 6,570, 64,348*l.*; Furness and South Cumberland Permanent Benefit, 1,882, 42,546*l.*; Colne Permanent Benefit, 1,179, 29,176*l.*; Marsden, Nelson, Lancashire, 1,446, 37,842*l.*; Hinckley Permanent Benefit, 1,240, 16,913*l.*; Leicester Permanent, 9,623, 224,806*l.*; Market Harborough and District Permanent Benefit, 1,586, 26,141*l.*; Leicester Temperance and General Permanent, 3,506, 37,381*l.*; Woolwich Equitable, 4,799, 452,774*l.*; People's Co-operative Permanent, Greenwich, 1,320, 44,927*l.*, National Freehold Land and Building, 25, Moorgate-street, 10,036, 544,156*l.*; Perpetual Investment, New Bridge-street, Blackfriars, 2,580, 94,261*l.*; Temperance Permanent, Ludgate-hill, 9,100, 721,124*l.*; Fourth City Mutual Benefit, Gresham-street, E.C., 1,813, 226,271*l.*; Borough of Finsbury Permanent

Investment, 1,010, 55,650*l.*; Abbey-road and St. John's Wood Permanent, 3,807, 171,752*l.*; Hearts of Oak Permanent, 4,336, 272,198*l.*; Post Office Permanent, 1,138, 45,703*l.*; Nineteenth Century, Adelaide-place, London Bridge, 1,025, 51,311*l.*; Portman Chapel Temperance Permanent Benefit, 1,965, 145,941*l.*; North-West District Permanent, Paddington, 1,086, 60,140*l.*; Co-operative Permanent, Red Lion-square, W.C., 3,910, 80,536*l.*; Westbourne Park Permanent, Bayswater, 4,716, 291,934*l.*; Northern Counties Permanent, Newcastle, 2,422, 157,026*l.*; Nottingham Permanent Benefit, 4,506, 153,594*l.*; Burslem and Tunstall Permanent, 1,445, 20,451*l.*; Stoke-upon-Trent Permanent, 1,129, 18,172*l.*; Leek and Moorlands, 4,171, 153,457*l.*; Leek United Permanent Benefit, 1,975, 50,097*l.*; Wolverhampton and District Permanent, 2,248, 41,582*l.*; Kingston-on-Thames Permanent Mutual Benefit, 1,690, 50,264*l.*; Lewes Co-operative Benefit, 1,552, 33,807*l.*; Friendly Benefit, Birmingham, 1,435, 100,653*l.*; Birmingham Incorporated, 5,471, 311,188*l.*; Rugby Benefit, 1,278, 50,847*l.*; Amalgamated Thrift, Birmingham, 1,200, 9,258*l.*; Dudley and District Benefit, 2,244, 84,705*l.*; Worcester Permanent, 1,778, 45,849*l.*; Wakefield and West Riding Permanent, 1,637, 90,181*l.*; Leeds Permanent Benefit, 11,545, 653,426*l.*; Leeds Provincial, 4,499, 193,169*l.*; Bradford Second Equitable, 3,433, 214,239*l.*; Keighley and Craven Permanent Benefit, 1,367, 67,431*l.*; Halifax Permanent Benefit, 8,549, 531,609*l.*; Barnsley Permanent, 2,812, 100,680*l.*; Skipton and District Permanent Benefit, 1,145, 35,024*l.*; Bradford Third Equitable Benefit, 8,398, 556,969*l.*; Huddersfield Equitable Permanent Benefit, 4,402, 155,886*l.*; Bingley, Morton, Shipley, and Keighley Permanent Benefit, 1,571, 107,302*l.*; Dewsbury and West Riding Permanent Benefit, 3,303, 100,145*l.*; Halifax Equitable Benefit, 2,094, 281,651*l.*; Leeds and Holbeck Permanent, 1,790, 143,056*l.*; Leeds City and District Permanent, 1,205, 26,081*l.*; Principality Permanent Investment, Cardiff, 2,329, 111,412*l.*; (the following are unincorporated societies, those given above being incorporated) Cambridgeshire Permanent Benefit, 1,601, 44,161*l.*; Waltham Abbey Benefit Building, 1,217, 83,506*l.*; Birkbeck Permanent Benefit, 17,034, 20,109,335*l.*; Second Birkbeck Permanent Benefit, 3,154, 229,768*l.*; Northampton Town and County Benefit, 3,584, 85,487*l.*; West Bromwich Permanent Benefit, 2,903, 68,536*l.*; Ipswich and Suffolk Permanent Benefit, 6,404, 50,775*l.*; Eastern Counties Permanent Benefit, Ipswich, 1,260, 85,542*l.*; Rape of Hastings Mutual Permanent Benefit, Hastings, 1,555, 81,571*l.*; Aberdeen Property Investment, 1,530, 50,534*l.*; Dunfermline Building Company, 2,757, 31,348*l.*; Stirlingshire Building and Investment, 1,179, 32,153*l.*; Irish Civil Service Permanent, Dublin, 1,111, 231,853*l.* (The last four are incorporated societies.)

During the year 1903 there were dissolved in England and Wales 88 building societies, whose aggregate liabilities at the commencement of dissolution amounted to 354,820*l.*, and whose assets realised 376,950*l.*

WESTMINSTER CITY COUNCIL.

THE usual fortnightly meeting of this Council was held on Thursday last week at the City Hall, Charing Cross-road.

Housing Scheme.—The Housing Committee were authorised to prepare and submit to the Council a scheme for acquiring the sites of four houses in Marshall-street for the purpose of erecting workmen's dwellings.

Electric Supply Boxes in the Public Way.—The Works Committee submitted a long rep on the subject of Electric Supply Boxes in the Public Way, in which they gave a history of the negotiations which had taken place between the various electric light companies concerned in the proposed restricted hours of opening of these boxes and the Council's representatives. The negotiations were terminated by the companies "abruptly and unceremoniously" in June last, when they rejected the amended proposals of the Council. The Board of Trade had since written, stating that, as at present advised, they were of opinion that the Council's amended proposals did not sufficiently give effect to the suggestions made by Mr. Bonar Law at the conference between the Council and the companies held at the Board of Trade. The Committee, continuing, said:—"By the companies' several Acts of Parliament the Council are empowered, with the approval of the Board of Trade, to prescribe the hours during which the undertakers are to have access to their distributing boxes. This provision was doubtless inserted in the several Acts having regard to the Council's position as the highway authority, and their responsibility for the upkeep of the streets so that they may be used and enjoyed by the ratepayers and the public. Similarly the approval of the Board of Trade was probably made requisite because of their position of control over electric light undertakings. The Board have been made fully acquainted with the views of the Council, and of the absolute necessity in the public interest for the regulation of access to these boxes, but they appear to attach but a secondary, if any, importance to these considerations. The attitude of the Board practically deprives the Council of their powers as the highway authority, and we are forced to the conclusion that the pockets of the electric light companies, which are trading for profit, appear to the Board to be of greater importance than the interests and convenience of the public, to whose use the highways are dedicated." The report was adopted.

Lighting of Kingsway, etc.—Last month the Council agreed to adopt in the new streets in the City leading into Kingsway the system of public lighting recently decided upon for the lighting of Aldwych—viz., incandescent gas lamps of 700 candle-power on 20-ft. columns. Having again gone into the matter, dealing also with the lighting of the portion of Kingsway in Westminster, the Committee considered that, while it was advisable to use lamps of the above-mentioned candle-power in Kingsway, it seems to them that the side streets could be efficiently lighted with lamps of the type ordinarily used in the City. The Council's former resolution was accordingly revoked.

The same Committee reported on a letter from the Postmaster-General on the subject of the reinstatement of pavements after the digging of trenches. It was agreed to inform the Postmaster-General that the Council proposed to deal with each case as it arose.

St. Louis Exhibition, Gold Medal.—It was reported that a gold medal had been awarded to the Council for its exhibit of cartoons and photographs, etc., showing the principal buildings in the City, methods of street paving, etc., at the St. Louis Exhibition.

TINTERN ABBEY.

MR. E. STAFFORD HOWARD, one of the Commissioners in charge of His Majesty's Woods, Forests, and Land Revenues, in his report for the year ended March 31, 1904, states that the following works have, during the last year, been carried out at Tintern Abbey, for the preservation of the structure, under the supervision of the architect, Mr. F. W. Waller:—

Chapter House.—The recent work has been removed from the east and north walls, and the earth excavated outside, laying bare the old wall and buttresses, all of which have been carefully preserved and protected; the south-east angle and part of the side wall at this point have been reset to strengthen the remains of the groined roof of the sacristy adjoining.

Sacristy.—The groining of the eastern compartment, which is all that remains of the former roof, was found to be in a very bad condition, and it was necessary to place strong centres beneath the shores outside to thoroughly secure the structure during the works which were required to prevent further destruction, and to allow adequate protection from the weather being provided above.

Warming House.—There was a large accumulation of earth and rubbish on the top of the groining of this section of the building, and water passed through this and the groining, doing much harm. The whole of this earth has been removed, and a layer of cement concrete has been laid over the groining, the levels being so arranged that all water will, in future, drain away clear of the building. The walls have also been protected and pointed, and all dangerous parts have been reset or otherwise secured.

Monks' Day-room.—A certain amount of repair has been carried out to the walls here, and, in so doing, an interesting discovery was made; when replacing part of the stonework beneath one of the windows, it was found that for some distance from the ground the present wall surface is a casing on older work, and that the old wall still exists behind it. Beneath one of the windows the back of an old fireplace was discovered, the stonework being set in herring-bone pattern.

Cloisters.—Some small repairs have been done here, and part of the foundations of the outer wall have been laid bare.

Western Entrance to Buildings.—Considerable progress has been made in opening up this. The old cottage has been removed, the form and arrangements of the old entrance and adjacent buildings have been ascertained, and the walls and stonework generally made secure. A wooden room has been erected within the walls for the shelter of the custodian, and other arrangements have been made to enable this to be used as a general entrance to the Abbey.

General Work.—Three of the old buttresses have been underbuilt where the lower part has been removed, and the upper part left hanging, one of these buttresses being at the west end of the Abbey, and the other two at the east end. The exposed surface of certain of the old walls has been protected, and sundry minor works have been carried out, including the investigation of certain parts of the offices, and the collection and arrangement of the numerous pieces of moulded and carved stonework. Arrangements have now been made to erect a scaffolding at the east window, and the stonework of the window will be thoroughly examined, and means taken to prevent further mischief. The condition of the large centre mullion and the remains of the tracery above render this necessary.

OBITUARY.

MR. W. FREEMAN.—We have to record the death of Mr. William Freeman, architect, of Hull, who died on the 17th inst., after a long and painful illness. Mr. Freeman had been in practice for upwards of thirty years, and held the position of architect to the School Board at Newington previous to that district being incorporated with the City of Hull. In the course of his professional career he had designed and carried out more than 200 chapels.

GENERAL BUILDING NEWS.

NEW CHURCH, CATFORD.—The Church of St. Andrew, Catford, which was consecrated on October 29, is a large church somewhat in the Decorated Gothic spirit, but so treated as to be essentially modern. There is accommodation for about 950, or 1,020 (with the gallery, which is not yet built). The contract sum 8,500*l.* Mr. F. G. Minter, of Putney, was the contractor, and Mr. Comport the clerk of the works. The church is built of Portland and Stamford stones, best red bricks, and tiled roof. The architect, Mr. Philip A. Robson, of Westminster, gained the commission in a limited competition in 1899. The mission hall was built first as a temporary church; the church has now been finished, and shortly the vicarage will complete the scheme.

RESTORATION OF CRANWELL CHURCH.—The Parish Church of St. Andrew's, Cranwell, near Sleaford, was reopened recently by the Bishop of Lincoln. Under the supervision of Mr. C. Hodgson Fowler, F.S.A., Durham, the architect, the work has been carried out. The chancel has been rebuilt, and a vestry and organ chamber have been added at a cost of 1,500*l.*, by Mr. Wood, builder, Alford. New floors and new oak seats have been made.

NEWLAND CONGREGATIONAL CHURCH, HULL.—The Building Committee of the Newland Congregational Church are erecting a new building at the corner of Vermont-street and fronting to Beverley-road, Hull. The total scheme when completed will consist of the church (with a total accommodation of 803 sittings—634 in the body of the church and 169 in the gallery), the usual vestries, church parlour, and a school situated on the left of the site, with frontages to Beverley-road and Brooklyn-street, with the total accommodation for 600 people, including the gallery. The Committee have decided to erect the church, the church parlour, and the vestries at the present time. The buildings are being constructed of red bricks, with buff terra-cotta ornaments and dressings. The windows are to be glazed with leaded lights. The main roof over the body of the church will be octagonal in shape, crowned by a turret. The exposed internal woodwork will be carried out in pitch-pine. Passing through one of the five sets of swing doors will be found a vestibule, 55 ft. long and 10 ft. wide, with two staircases, one at either end, leading up to the gallery. From this vestibule there are two pairs of swing doors and two single doors leading into the church. The church is to cost 6,000*l.*, exclusive of the site, and the contract has been let to Mr. J. H. Fenwick, of Hull. The architects are Messrs. Moulds & Porritt, of Manchester, Bury, and London.

CHURCH, THURLSTONE, DERBYSHIRE.—The foundation-stone of the new church at Thurlstone was laid on the 5th inst. The church, which is being built from the designs of Mr. C. Hodgson Fowler, of Durham, will accommodate about 280 worshippers. It will consist of nave, aisles, chancel, organ chamber, and vestries, and will be over 90 ft. long, and 42 ft. wide. At some future time it will be extended by the addition of another arch and the building of a tower, so that the west wall now being built is only temporary. The

outer walls are of local stone, the inner of red sandstone, and the mouldings, pillars, and arches of white Ancaster stone.

WESLEYAN METHODIST CHURCH AND SCHOOLS, MEXBOROUGH.—The new Wesleyan church with schools adjoining in Bank-street, Mexborough, were opened a short time ago. The buildings are designed in the late Gothic style. The walls are of brick inside, with rock face outside. Accommodation is provided on the ground floor for 310 adults, and in the gallery and choir for 220, total 530, or a mixed congregation of 700 persons. The main roof timbers are enriched with curved ribs and panelled work above. The ceiling is of pitch-pine, the joinery throughout being also of pitch-pine. The glazing is cathedral glass in leadwork. The schools are in two stories, and consist of assembly-room, with six classrooms, kitchen, stores, and all conveniences. The buildings are lighted throughout by electric light, and heated on the low-pressure hot-water system. Ventilation is provided by means of inlet and outlet ventilators. Messrs. C. Sprakes & Sons, Doncaster, were the contractors; Messrs. J. Wills & Sons, Derby and London, the architects. The installation of electric light was carried out by Mr. Midwood, of Mexborough, and the heating and sanitary arrangements by Messrs. Truswell & Sons, Sheffield. The total cost of the work amounts to 5,000*l*.

PROPOSED CHURCH, EBBW VALE.—It is proposed to erect a parish church for the newly-formed district of St. John's, Ebbw Vale. Plans have been prepared by the architect, Mr. G. E. Halliday.

ROTHWELL PARISH CHURCH.—A scheme for completing the restoration of the parish church of Rothwell, in Northamptonshire, has been made by the firm of Sir Arthur Blomfield & Son, and includes the reparation of the Lady Chapel and the old vestry, a new oak roof, and reflooring for the nave, a ringing chamber with a chiming clock at the west end, with other minor objects.

BAPTIST CHAPEL, SWANSEA.—A new Baptist chapel is being built in the working-class district of Danygraig, Swansea. The building includes a lecture hall to seat 600 people. The chapel itself will accommodate 750 worshippers, and is designed with galleries on three sides. The buiding is being built of local stone, with blue Pennant stone facing, and relieved with Bath stone dressings. The work is being carried out by Messrs. Thomas Broad & Co., of Great Malvern, under the supervision of the architect, Mr. W. Beddoe Rees, Cardiff. The total cost of the building will be just under 3,000*l*.

SCHOOL, DERI.—New schools have just been opened at Deri, in the Fochriw Valley. The school provides accommodation at present for 270 boys and girls, and is planned with a view to future extension. There are five classrooms, opening on to a central hall, 72 ft. long by 18 ft. wide. There are also cloakrooms, a teachers' room, and store-room over same. The buildings have been erected by Mr. D. W. Davies, contractor, of Cardiff, at a cost of about 7,000*l*. The plans were prepared by Messrs. James & Morgan, architects, Cardiff, and Mr. Thos. Jones was the clerk of works.

SCHOOL, QUAKERS' YARD.—A new infants' school at Edwardsville, Quakers' Yard Station, was opened recently. The school has been built upon a site of about ½ acre, fronting the main road from Quakers' Yard Station to Treharris. It has been designed on the central hall principal, to accommodate 250 infants, and planned in such a manner as to allow extension. The school has been erected at a cost of about 3,400*l*., exclusive of furniture, by Mr. T. F. Howells, contractor, Cardiff. under the superintendence of the architect, Mr. J. Llewellin Smith.

COUNCIL SCHOOLS, EAST CHEVINGTON.—New schools have recently been completed at South Broomhill from designs by Mr. J. Wightman Douglas, of Alnwick and Newcastle, for the Northumberland County Council. These buildings have been erected at a cost of about 7,000*l*., and include a school for 230 boys and 230 girls, and a hostel. The school has been planned on the central hall system, with corridor, and consists of six classrooms, 25 ft. by 22 ft., and four classrooms, 20 ft. by 22 ft., all on the ground floor, and opening direct into the wide corridor or central hall. The two central halls are each 28 ft. by 35 ft., and are separated by a sliding partition, which, when folded back, gives an assembly-room 70 ft. by 28 ft. One girls' classroom is fitted up with cooking range, and adjoining this room is a scullery and pantry, all fitted with hot and cold water. A classroom in each school is fitted up with sink, fume closet, and demonstration bench for chemical experiments in general science, and on the first floor there are separate rooms for the head and assistant mistresses of each department, the assistant teachers' room being suitable for the use of the pupil teachers as studies. The whole work has been carried out by Messrs. R. Carse & Son, Amble.

GIRLS' GRAMMAR SCHOOL, LEEDS.—The Leeds Girls' Grammar School in Woodhouse-lane is to be moved from its present site to the Morley House estate, which lies between Headingley-lane and Victoria-road. Plans, prepared by Messrs. Connon & Chorley, have been finally approved by the Board of Managers. The buildings are to be three stories in height. On the ground floor will be the entrances and cloakrooms, a central hall for general assemblage at special meetings. Board, secretary's, and head mistress's rooms, library, kindergarten-room, transition class, and other classrooms. On this floor there will also be a large gymnasium. On the first floor will be assistant mistresses' room, lecture-rooms, divisions-rooms six classrooms, and seven music-rooms. On the second floor will be a lecture-room, chemical and physical laboratories, cookery classroom, sewing-room, large drawing and modelling studios, and dining-room and kitchen, with provision for serving luncheons to the teachers and scholars.

WESLEYAN LECTURE HALL AND SCHOOL BUILDINGS, YARMOUTH.—New lecture hall and school buildings for the Wesleyans have just been opened at Great Yarmouth. These buildings, which have been erected at a cost of about 3,500*l*., adjoin, and have communication with, the Wesleyan church and old schoolroom. Mr. Ralph Cockrill was the architect. The new premises consist of a central hall, with classrooms on each side. It is connected with the church by a broad corridor. The front, extending along Dene Side for a distance of 85 ft., is of grey and white terra-cotta. The style is a free treatment of Renaissance. The main entrance, placed next the church, consists of one large and two small doors, flanked by pinnacles, and surmounted by a gable. The dimensions of the central hall are 67 ft. long by 40 ft. wide.

ROTHERHITHE TOWN HALL.—Some alterations are about to be carried out for the Bermondsey Borough Council, under the directions of Mr. R. J. Angell, Borough Surveyor, of the Town Hall, Rotherhithe. In our issue of March 16, 1895, we published illustrations of Messrs. J. Murray & F. Foster's selected designs for the building, and on December 3, 1898, of a panel in relief, designed and executed by Miss E. M. Rope to fill a space 20 ft. in length below the front of the gallery in the council chamber.

PUBLIC BATHS, NEWCASTLE-UNDER-LYME.—The Corporation of Newcastle are about to build new public baths in Brunswick-street. The architect, whose plans for the baths have been accepted, is Mr. J. B. Langley, of Manchester, and the estimated cost of the building is 11,500*l*. The large swimming or plunge bath will be 100 ft. long by 35 ft. wide, varying from 3 ft. to 6 ft. deep, with sixty dressing-boxes, attendant's box, footbaths, shower baths, and lavatory arrangements. Another swimming bath will also be provided, to be set apart more particularly for children. This will be 50 ft. long by 25 ft. wide, with a capacity of 35,150 gallons, and a depth varying from 3 ft. to 6 ft. This bath will have fifty dressing-boxes, attendant's box, footbaths, shower baths, and lavatory accommodation. Also on the ground floor will be Turkish baths. The main entrance is from Brunswick-street, there being two doors. One door leads into a hall, and the first door on the left leads to the juvenile swimming bath, the intention being that school children shall not have to pass the entrances to the other baths. The ticket office will be on the right hand of the entrance, with turnstiles for entrance and exit. Beyond, also on the right, is the entrance to the Turkish baths, and facing the front door the entrance to the large swimming bath, whilst a broad staircase leads to the balcony, etc., on the first floor. The other street door leads into the caretaker's hall, from which opens a committee-room. From this hall stairs ascend to the caretaker's house. Also on the ground floor are the laundry, with drying closets, etc., the boiler-house, with two boilers and economiser. On th first floor, besides the balcony and the caretaker's rooms, will be six first and twelve second class slipper or private baths, with accommodation for the provision of more if this should become necessary. The front to Brunswick-street is to be built of local stocks and red sandstone, also that to Bagnall-street, and the front to School-street is to be suitably treated. The roofs are to be covered with tiles, and a long continuous lantern light and ventilator will run the whole length of both baths.

FEVER HOSPITAL, FELLING, DURHAM.—A new fever hospital for Felling has lately been completed for the Felling District Council. It occupies an area of 1½ acres at Windy Nook, and is built on the pavilion system, each block being approached by covered ways, with open sides. The building, which is of stone, consists of four principal wards, with separate isolation wards communicating with the covered ways. Two of the wards are of large size, being intended for the use of women and children. The accommodation is for twenty-four beds, independent of the isolation wards. Attached to each block there is a bathroom and the usual conveniences, and rooms for day and night nurses are provided. The administrative block is situated near to the entrance to the grounds, and consists of matron's, nurses', and doctors' rooms, seven bedrooms, bathroom, kitchen and scullery, and storerooms. Telephonic communication has been made between the nurses' and matron's rooms, and each block of the hospital. At some little distance from the hospital blocks are placed the laundry, disinfecting-rooms, mortuary, and ambulance-house. The cost, inclusive of all roadways, drainage, etc., has been 9,857*l*. The building has been designed and carried out by Mr. H. Miller, architect, Felling, and the contractor is Mr. J. Wilkinson, Felling.

FREE LIBRARY, TEDDINGTON.—The foundation-stone of the new Free Public Library was laid at Teddington on the 12th inst. The library will face the Waldegrave-road, and the building will be set back from the road a distance of 17 ft., which space will be laid out as a garden with shrubs and lawn. The entrance is in the centre of the front, through a porch and vestibule, into a square hall. On the left are doors leading to the ladies' reading-room and the reference library, and on the right to the general reading-room and the magazine-room, while the lending department, with accommodation for 20,000 volumes, faces those entering. The lending department and reference-room are both top lighted, the latter by a dome, and the former has supervision of all the rooms through glazed screen partitions. The front facing Waldegrave-road is in two stories, the upper floor containing committee and retiring rooms, stores, and book-mending apartments. The librarian and staff have their own entrance to the rear, and their own private rooms. Over the centre of roof, a flèche, for ventilating purposes, forms a central feature. The front is to be faced with red Bracknell bricks and stone dressings, and the roofs covered with green Westmorland slates. Internally, marble columns, glazed faience tiles, lead light glazings, and marble mosaic floors are the principal decorative items, while the building will be lighted at night with electric light, and warmed in winter by hot-water radiators. The contract has been let to Messrs. W. J. Fryer & Co., of Sloane-square, London, for the sum of 3,600*l*., from the plans of Mr. Henry A. Cheers, architect, of Twickenham.

FIRE BRIGADE STATION, KILBURN.—Mr. Edward Smith, Chairman of the Fire Brigade Committee of the London County Council, recently opened a new fire station in Maidavale, Kilburn. The new station has been erected by the Works Department of the London County Council, from the designs of Mr. W. E. Riley, the Superintending Architect. The site cost 2,301*l*., and the buildings 7,300*l*.

VILLAGE CLUBHOUSE, WARLEY, YORKS.—This building has just been opened at Warley Town. The porch leads to a hall, which gives access upon the right-hand side to a reading-room, 27 ft. by 21 ft., and adjoining this is a games-room, 17 ft. by 12 ft. On the left-hand side, opening out of the inner hall are lavatories, cloakrooms, and kitchen, and a staircase down to the heating cellar and up to the first floor, where there is a billiard-room, and on the same floor above the opening off the landing are a lavatory and separate bathroom, with hot and cold water. In addition to the open fireplaces, the building is warmed with low-pressure hot-water radiators. The work has been carried out under separate contracts by the following contractors:—Messrs. William Kershaw, mason; S. Sutcliffe, joiner; J. S. Akroyd, plumbing and heating; T. Archer, plastering and slating; George Greenwood & Sons, concreting; T. Waddington, painting. The building has been designed by and carried out under the superintendence of Messrs. Joseph F. Walsh & Graham Nicholas, architects.

PREMISES FOR DOCKERS AND LABOURERS, HULL.—On the 10th inst. the Bishop of Hull (Dr. Blunt) dedicated and opened Etheldreda House, the block of buildings which the Sisters of the Church have erected in Trippett-street for the accommodation of dockers and other casual labourers. Etheldreda House is intended to be a home for the poorest class of workers. The charge for a cubicle is fourpence for the night. The

building has been designed to find sleeping accommodation for about seventy-five men, each having a separate cubicle. The ground floor of the building has a dining-room, in connexion with which is a kitchen for the men to cook their own food; also a shop at which they will be able to purchase provisions which, if it is wished, will be cooked for them. There is also a smoke-room provided. The remainder of the floor is occupied by the sisters' and caretakers' rooms. On the first floor is placed the chapel, which is so arranged that in the event of a detached chapel being erected, it can be divided into cubicles, and thus obtain accommodation for fifteen more men. There is also a recreation-room and five cubicles, sisters' room, etc. The remainder of the floors are given over entirely to the sleeping accommodation for the men. In the basement of the building ample kitchen accommodation has been provided, also a laundry for the lodgers. The architects for the building are Messrs. Brodrick, Lowther, & Walker, and the contractors Messrs. G. Jackson & Son, of Hull. The engineering works have been carried out by Messrs. Bradford & Co., of Salford.

LIBRARY, WALSALL.—A new Carnegie Library is about to be erected in Lichfield-street, Walsall, from the designs of Mr. J. S. Gibson, London. Messrs. Willcock & Co., of Wolverhampton, are the contractors.

BUSINESS PREMISES, BELFAST.—New premises are being built in High-street, Belfast, for Mr. C. M'Cullagh. Messrs. Blackwood & Jury are the architects for the work, the contractors being Messrs. M'Laughlin & Harvey. A "Carara" front is being supplied by Messrs. Doulton & Co., London.

COUNCIL OFFICES, ABRAM, LANCASHIRE.—The District Council of Abram have erected new offices, and these have just been opened. The site of the offices is on the east side of Warrington-road at Abram-brow, opposite St. John's Church. The ground floor contains offices for the clerk, rate collector, nuisance inspector, and pay office. The first floor contains council chamber, 30 ft. by 20 ft., surveyor's office, chairman's parlour, and spare office. There is also a house adjoining containing six rooms, which can be attached to the offices when further accommodation is required. There are three fireproof safe-rooms, and the basement contains cellar for the heating apparatus. The entrance hall is paved with encaustic tiles, and the walls have ornamental glazed tile dado, and the offices have wood-block floors laid on concrete bed. The front elevation is of terra-cotta. The out-buildings consist of stabling for five horses, and hay-loft over, waterman's workshops and store-room, and shed for vehicles. The buildings have been erected by Messrs. Joseph Wilson & Co., of Wigan, and the furnishing by Messrs. Barlow and Messrs. Pendlebury, Ltd., and the heating by Mr. W. H. Gaskell. The total cost has been about 3,400*l.*, and the work has been carried out from the designs and under the supervision of Messrs. Heaton, Ralph, & Heaton, of Wigan.

NEWSPAPER OFFICES, DUNDEE.—New premises are now in course of erection at Meadowside, Reform-street and Euclid-crescent, for the *Dundee Courier*. The style of the buildings is Renaissance, the material used will be stone from Dumfriesshire quarries, and the total cost, including site, will be over 60,000*l.* The contract was obtained by Mr. Thos. C. Stocks, builder, Dundee. To secure a stable foundation ferro-concrete piles are being driven, and on these is being laid a bed of ferro-concrete, braced throughout with steel. The building will have seven floors, including basement and mansard, and the main entrance will be in Meadowside. The counting-house and advertising department will be on the street level, editorial departments will be accommodated on intermediate floors, and the composing-room will be on the top. Messrs. Niven & Wigglesworth, architects, prepared the plans for the work.

VICARAGE, THORPE ARCH, YORKSHIRE.—The foundation-stone was recently laid of the new vicarage which is being erected in this village. The design of the building is XVIIth century in style, the lower half being of Pateley Bridge stone, and the upper of hard brick, rough cast, and coloured. The roof will be of tiles, and the windows of leaded lights. Part of both house and stable are to be finished in half-timber work. The architects are Messrs. Oliver & Dodgshun, of Leeds and Carlisle.

SCHOOL EXTENSION, GRAYS, ESSEX.—A local inquiry was held recently at Quarry Hill Schools, Grays, by members of the Essex Education Committee into applications by the Governors of Palmer's Endowed School, Grays, with respect to proposed alterations and extensions. Mr. C. N. Shiner, architect, submitted plans to provide accommodation for 100 pupil teachers attending half-time. Additional classrooms on the boys' side were proposed, to provide for 181 students as against 106 at present, together with a common-room for day boys coming from a distance, and a proportionate increase on the girls' side. It was estimated that the total cost of the land and works would be about 10,000*l.*

EXTENSION OF BUSINESS PREMISES, HAMMERSMITH.—Alterations and extensions have been carried out at the premises of Mr. John Broughton, in King-street, Bridge-avenue. Mr. D. Carmichel was the architect, and Messrs. Henry Lovatt & Co., London and Wolverhampton, were the builders.

RENOVATION OF THE AQUARIUM, BRIGHTON.—Plans have been prepared by Mr. C. F. W. Gillam, architect, Brighton, for the improvements and alterations which are shortly to be made to the Brighton Aquarium. The scheme provides for the enlargement of the theatre, for a winter garden in place of the existing skating rink, and for the re-roofing and general renovation of the whole building. The work is estmated to cost 12,000*l.*

BELFAST MATERNITY HOSPITAL.—The new Maternity Hospital in Townsend-street, Belfast, was opened on the 7th inst. The site has a frontage along the east side of Townsend-street of 98 ft., and extends back 183 ft. The entire site is now occupied by the building, which is planned in the shape of the letter T, with the head towards the street. The hospital has three floors, the ground floor being used for the executive, etc., and contains the kitchen wing, the matron's room, committee and nurses' dining-rooms, the quarters for the resident doctor, a room for students, and at the extreme end of the building the extern department. The principal entrance is in the front facing Townsend-street. The kitchen entrance, the students' and patients' entrances, are from a wide passage along the southern side of the building. The extern department contains a waiting-room and a consulting-room, a bathroom and lavatory, and it is by this portion that all patients will enter the hospital. The principal staircase faces the front entrance, and provision has been made in the stair well for a passenger hoist, communicating with each of the floors. The first or middle floor is devoted to the accommodation of patients, and contains the couchroom, and near it the observation-room, and a room beside it for the use of the nurse on duty for this ward. There are also four wards, each containing four beds, and some smaller one and two bed wards for separate cases or paying patients. Provision has been made for an extension in the future over the extern department, but in the meantime this portion terminates with a garden roof, level with the first floor, at the end of the building, and is reached from the lateral corridor that communicates with the wards. The lavatories, bathrooms, etc., are contained in a sanitary tower as an annexe, separated from the main building by a disconnecting passage. The third or top floor is, with the exception of one four-bed ward, occupied by the sleeping apartments of the staff, the larger rooms being sub-divided by cubicles. The laundry has been placed at the end of the yard. The yard also contains a disinfector as well as other hospital requirements. Owing to the floor level being kept well over the surface of the ground, a basement passage has been formed under the corridor, in which all the water, gas, and electric mains are carried. The coal store is also in the basement. The works have been carried out, to the designs of Mr. W. J. Fennell, by Messrs. M'Laughlin & Harvey, builders. The sanitary fittings and plumbing were entrusted to Mr. S. N. Gray, while the electric lighting was carried out by Messrs. Richard Patterson & Co., Ltd., under the supervision of Mr. John Woodside, consulting electrical engineer.

LABOUR HOME, ANCOATS.—The Lord Mayor of Manchester, on the 7th inst., opened the new wing of the Manchester and Salford Men's Mission Home and Workshop in Hood-street and Murray-street, Ancoats. The new wing provides accommodation for 180 beds, and provides also a day-room, which is to be used for recreative educational purposes in the evenings, besides certain kitchens and other departments. Messrs. Sankey & Cubbon have designed the structure, and the building has been carried out by Messrs. Gerrard, of Swinton.

THEATRE, KIRKCALDY.—The new King's Theatre, Kirkcaldy, was formally opened recently. The new playhouse, which is seated to accommodate from 2,000 to 3,000 persons, has been provided at a cost of 20,000*l.* It occupies a site on Redburn Wynd and High-street. It has been built from plans prepared by Mr. J. D. Swanston, architect, Kirkcaldy. On the ground floor are the orchestral stalls, pit stalls, and pit, while on the first tier of the lower gallery is the dress circle, and on the second tier the amphitheatre. The upper gallery is divided into tiers. At each side there are five boxes. The stage is 60 ft. by 30 ft., with proscenium opening of 28 ft. Retiring-rooms are provided to the various sections of the house.

STAINED GLASS AND DECORATION.

MEMORIAL TO THE LATE MR. HUGH PRICE HUGHES.—A stained-glass memorial window, in memory of the late Mr. Hugh Price Hughes, was unveiled in the Wesley Chapel, City-road, on the 17th inst. The central figure of the window is in a crimson robe, the emblems of the Last Supper on the left hand. In the upper part are figures of "Faith" and "Hope," and at the base the subjects are the calling of the Apostles St. James, St. John, and St. Peter. Under the central figure are two inscriptions. Mr. H. J. Salisbury was the artist.

SANITARY AND ENGINEERING NEWS.

NEW BRIDGE, ABERDEEN.—The new steel girder bridge connecting Guild-street with Bridge-street, and forming a part of the Aberdeen Joint Station extension works, is now almost completed. The total width of the structure over the outside parapets is 57 ft. 6 in., comprising a carriageway 35 ft. clear width, and two footways each 8 ft. wide. The total length between abutments averages about 180 ft., divided into two spans of 90 ft. each, and supported on the centre platform by two steel-built and riveted octagonal columns which have each to carry a weight of about 450 tons when the bridge is fully loaded. The main girders, which, owing to the limited headroom, project about 8 ft. above the street level, in the line of the kerbs, vary in length from 90 ft. to 94 ft., and are 11 ft. deep at the centre. They are of the multiple lattice type, with a curved top boom, the latter being of the box shape. The main girders are free to expand on the abutments, and are provided with machined bearing plates placed between them and the cast-steel bed plates. The floor of the bridge consists of cross girders averaging about 22 ft. apart, nutted to the bottom booms of the main girders, and so arranged in position that they lie directly above, and in line of the 6-ft. ways of the railway lines below, thus utilising as much of the available train headroom as possible. Between these and lengthways of the bridge are fixed shallower girders, about 5 ft. apart, the whole forming the framework supporting the carriageway. The spaces between the last-named girders are spanned by brick arches, two rings thick, the lower ring being of blue brick, with concrete haunching above, finished level with the top of the girders, while the surface is spread over with asphalt 1 in. thick. The roadway is formed of 4-in. granite cubes set in sand in the ordinary way, and finished off at the sides with a cast-iron kerb. The footways are similar, but of lighter construction, and are carried on cantilevers projected out in line of the cross girders. They are coated with asphalt, and paved with adamant slabs. Provision is made below the footways for carrying gas and water pipes and electric mains, openings being provided for these through the cantilevers and intermediate supports. On the outside of the footways a cast-iron parapet is formed in panels 3 ft. wide, and on the inside a lattice guard railing is attached to the main girder. At the end of the parapets granite ashlar parapets will be built. The girder blocks and column bases are built of Rubislaw granite, while the other portions of the masonry work are of stone. The contractors for the whole work are Messrs. Findlay & Co., engineers, Motherwell, and the sub-contractors:—Mason work, Mr. George Hall; joiner work, Mr. Alexander Hall; cast-iron, Messrs. James Abernethy & Co.; and painter work, Mr. Donald. The structure has been built from plans prepared by Mr. P. M. Bennett, Engineer-in-Chief of the Great North of Scotland Railway Company.

WATER SUPPLY, GOBOWEN AND UPPER HENGOED.—An inquiry was opened by Colonel W. E. Slack, R.E., on behalf of the Local Government Board, at Gobowen, on the 17th inst., into the application of the Oswestry Rural Council for sanction to borrow 2,500*l.* to meet the cost of providing the villages of Gobowen and the Upper Hengoed with an improved supply of water. Mr. E. J. Griffith, M.P., explained that it was intended to impound a small proportion of the water which arose from two springs in the neighbourhood, the water from which flows into a stream known by the name of Mardy. It was

proposed to extend the new supply to Whittington. Mr. F. Berrington, the Council's Engineer, explained the details of the scheme, and the inquiry was adjourned.

FOREIGN.

FRANCE.—The Académie des Beaux-Arts appointed M. Saint-Saëns Director of the Villa Medici, but he has declined the appointment, and MM. Barrias and Bernier also withdrew their names, leaving M. Carolus-Duran sole candidate. This apparently is not what was desired or expected, and the Académie is on the look-out for further candidates.——M. Chartran, the painter, has designed a special border for the tickets of the Opéra Comique. The design shows the figure of a Muse in front of a Grecian landscape, in which the acropolis of Athens is introduced.——On December 3 the monument to Gavarni, by M. Denys Puech, is to be inaugurated on the site of the ancient fountain of the Place St. Georges. The architectural portion of the monument is by M. Henri Guillaume.——The Socialist members of the Paris Municipal Council are demanding the secularisation of the church of the Sacré Cœur at Montmartre, in order to transform it into a "Maison du Peuple." A vote of Parliament, however, would be required to carry any such scheme. ——M. Georges Ermant, architect, of Laon, has been elected President for 1904-5 of the Société des Architectes of l'Aisne.——The library and the museum at Valence are to be rebuilt, at an estimated cost of half a million francs.——M. Weerts, the painter, has been commissioned by the Government to decorate the grand staircase of the Ecole Nationale des Ponts et Chausséés, Rue des Saints Pères.——M. Rodin is at work on a bust of Falguière. ——Mdme. Garnier, the widow of Charles Garnier, has presented to the Académie Nationale de Musique the bust in bronze, by Carpeaux, of the eminent architect. The bust has been placed in the Foyer de la Danse, on a pedestal of Cippolino marble.——The Municipal Council of Paris has under discussion a scheme for a new architectural treatment of the façade of the Bibliothèque de l'Arsenal, and the formation of a square in front of it, in the centre of which would be a statue representing "La Gloire Nationale."——M. Vernon, the medallist, has just completed the model for a medal in commemoration of the Congress of Academies. The composition includes draped female figures, who symbolise the various Academies; they are crowned with laurel and grouped, under the presidency of Athené, in a landscape suggestive of the architecture and scenery of Greece.——The new buildings of the Conservatory of Music, at Lyons, were formally opened on Sunday last. ——The "Société Protectrice des Animaux" has opened a competition for designs for advertisements, which are now on view at the Petit Palais, at Paris. There are about 150 drawings, many of them showing a great deal of taste and originality.——M. Pierre Chapoulart, architect, of Toulon, has died, at the age of sixty-nine. He was a pupil of M. Dumas, architect, of Brive, and carried out many country houses in that part of France. ——The death is also announced, at the age of seventy-two, of M. Kuwasseg, the painter, a pupil of his father, and of Durand Brager. He exhibited first in the Salon of 1859, and obtained a medal in that of 1862. He was specially a painter of sea pictures and maritime subjects.

GERMANY.—A new theatre is to be built at Charlottenburg from the plans of the architects, Heilmann & Littmann, of Munich.——The new Catholic church at Ulm, designed by Herr Max Meckel, was consecrated on November 8.——The Commission for the Preservation of Memorials in the German Kingdom have arranged that Professor Dehio, of Strasbourg University, shall compile a "Handbook of German Memorials"; the Commission consists of Professor Cornelius Gurlitt, of Dresden, Professor A. von Oechelhäuser, of Karlsruhe, and Herr Loersch, of Bonn.——The theatre at Dortmund, designed by Professor Martin Dülfer, of Munich, was opened on September 17.

AUSTRIA.—The Town Council of Prague have accepted the plans of Professor Koula for the new bridge over the Moldau.——The engineer and architect, Franz. M. Griesbach, died on September 17, at Brüx, in his sixty-sixth year; the deceased possessed the gold cross of merit, which was granted him on his completion of the law courts, at Brüx.

SWITZERLAND.—Important alterations and extensions are to be undertaken at Lausanne, for which the "Commission d'Art Public," consisting of five architects, sat in September. ——The new museum at Geneva is being built from the plans of Herr Marc Camoletti; the foundation stone of the building was laid on September 17.——The Swiss Society for Preservation of Historical Memorials held its annual meeting at Locarno on October 25.

A NEW GERMAN ART PAPER.*—A new German publication, entitled *Hohe Warte*, has just appeared. This paper, the title of which is best rendered by the English *Watch Tower*, is perhaps equivalent to the *Studio*, though smaller and not so copiously illustrated; but the scope is more limited, and seems only to include what may be termed the "household arts," from external architecture, interiors, furniture, and decoration, to embroidery and photography. In an introductory note the editor announces his intention of showing, where possible, examples of the artistic and inartistic side by side, thus contrasting the good and bad, and leaving the reader to draw his own conclusions. This idea is effectively carried out in the first number by illustrations of model workmen's houses at "Port Sunlight" and "Bournville," as contrasted with a typically-hideous row of small dwelling-houses of the old-fashioned kind. There is also an article on "Old Furniture in Modern Houses," by the architect, Franz Messner, illustrated by photographs of a room, the furniture of which dates from the beginning of the XIXth century. Herr Paul Schultze-Naumburg, in an article entitled "Villages," writes an urgent appeal to modern German architects to return to the simple, beautiful, and practical style so prominent in the old German farmhouses, and to leave the more ornate designs for more suitable occasions. Interesting, as showing a return to this simplicity of outline, are the designs by the architect, Professor Joseph Hoffmann, for furniture suitable for use in small modern dwellings. The object of this new magazine is given in the closing words of the editor's introductory note:—"Everywhere are indications of an eager desire for true artistic culture; and, in our opinion, this inclination only needs to be constantly guided and turned in the right directions."

MISCELLANEOUS.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS. —Messrs. Norton & Gregory, Photo-copiers and Lithographers, etc., have removed from Artillery-row, Victoria-street, to Castle-lane, Buckingham Gate, S.W.

MINERAL OUTPUT FOR 1903.—According to the returns collected by the Inspectors of Mines and Quarries the total output of the principal minerals from all mines, from quarries, and from certain other workings in the United Kingdom in the year 1903 was as follows (in tons):—Alum shale, 3,284; arsenic, 902; arsenical pyrites, 57; barytes, 24,271; bauxite. 6,128; chalk, 4,469,974; chert and flint, 73,181; clay and shale, 16,198,021; coal, 230,334,469; copper ore, 6,428; copper precipitate, 439; fluor spar, 11,911; gold ore (auriferous quartz), 28,600; gravel and sand, 2,245,757; gypsum, 219,897; igneous rocks, 5,425,538; iron ore, 13,715,645; iron pyrites, 9,639; lead ore, 26,567; limestone, 12,222,971; manganese ore, 818; ochre and amber, 14,150; oil shale, 2,009,602; phosphate of lime, 70; salt, 1,886,992; sandstone, 5,409,502; slate, 531,612; sulphate of strontia, 22,842; tin ore, 7,381; uranium ore, 6; wolfram. 272; zinc ore, 24,888.

THE INCORPORATED CHURCH-BUILDING SOCIETY. —This Society held its usual monthly meeting on the 17th inst., at the Society's House, 7, Dean's-yard, S.W., the Rev. Canon C. F. Norman in the chair. Grants of money were made in aid of the following objects, viz.:—Building new churches at Heigham, St. Barnabas, near Norwich, 105*l.*, and Smethwick, St. Alban, near Birmingham, 150*l.*; rebuilding the church at Sparkwell, All Saints, near Plympton, Devon, 20*l.*, and towards enlarging or otherwise improving the accommodation in the churches at Aberystwyth, St. Michael and All Angels, Cardigan, 60*l.*; Borstal, St. Matthew, near Rochester, 50*l.*; Cardigan, St. Mary, 50*l.*; Clevedon, St. Andrew, Somerset, 40*l.*; Compton, St. Mary and St. Nicholas, Berks, 25*l.*; Egg Buckland, St. Erasmus, near Crownhill, Devon, 10*l.*; Heckmondwike, St. James, Yorks, 50*l.*; Hednesford, St. Peter, near Stafford, 60*l.*; Hilton, St. Mary Magdalene, near St. Ives, Hunts., 25*l.*; Little Ilford, St. Barnabas, 25*l.*, making in all 100*l.*; and Usworth, Holy Trinity, Durham, 35*l.* Grants were also made from the special Mission Buildings Fund towards building mission churches at Leyton, St. Edward, Essex, 50*l.*; and Skewen, near Neath, Glam., 30*l.* The following grants were also paid for works completed:—Winterton, All Saints, near Doncaster, 25*l.*; West Bergholt, St. Mary, near Colchester, 60*l.* on account of a grant of 100*l.*; Hendy, St. David, Glam., 100*l.*; Gainsborough, St. John, Lincs., 10*l.*, making in all 110*l.*; Brechfa, St. Teilo, Carmarthen, 20*l.*; Westham, St. Paul, near Weymouth, 25*l.* on account of a grant of 200*l.*; Downe, St. Mary, Kent, 5*l.*; Newcastle-on-Tyne, St. Matthew, 40*l.*; Leicester, St. Mark, 75*l.*; Bristol, St. Aidan, 130*l.*; Cudworth, St. Michael, Somerset, 25*l.*; Plymouth, St. Augustine, 75*l.*; Sympson, St. Thomas, near Bletchley, Bucks., 20*l.*; Gorefield, near Wisbech, 20*l.*; Heath Hayes, near Cannock, Staffs., 50*l.*; Bushey, Herts, 50*l.*; Eltham, St. Luke, Kent, 25*l.*; and Llansadwrn, Capel Dewi, Carmarthen, 25*l.* In addition to this a sum of 431*l.* was paid towards the repairs of twenty-five churches from trust funds held by the Society. Before proceeding to the usual business of the meeting, the following resolution was unanimously adopted:—"The Committee of the Incorporated Church Building Society, at its first meeting after the death of their friend and colleague Mr. F. C. Dobbing, desire to record their sense of the great value to the Society of his ripe experience, which, by his frequent attendance at their meetings, was placed at their service. They take this opportunity of recalling with gratitude his generosity to the Society, especially to the Mission Buildings Fund, to which he was a regular and most liberal contributor; they recognise with thankfulness his work for the church by his untiring zeal to promote the increase of free church accommodation, and they tender to Mrs. Dobbing and her family this expression of sincere sympathy."

AN ARTISTIC ALMANACK.—We do not usually notice the crowd of almanacks in sheet form which are sent out at this time of the year, and which seldom have anything in their design worth special notice. The sheet issued under the title "Calendarium Londinense" (W. Monk and Elkin Mathews, Vigo-street) is, however, an exception. It is merely one folio sheet, the lower half of which contains the days of month and week in the year, the upper half contains an etching of a London subject by Mr. W. Monk. This is the third year of issue. The subject on this year's sheet is a view towards Westminster from the bank of the Thames at Grosvenor-road, a little way west of Lambeth Bridge; the shipping and staging, etc., forming an effective foreground, and the upper part of the Victoria Tower appearing over the houses. It is an admirable etching, and represents a corner of London which, when ever Lambeth Bridge is rebuilt, will probably be very much altered. The object of the publication is really to issue every year, for 2s. 6d., an etching of some point of interest in London, combined with an almanack. Such an almanack merits the support of architects.

BIRMINGHAM MASTER BUILDERS' ASSOCIATION. —The annual meeting of the members of the Birmingham Master Builders' Association was held on the 17th inst. at the Grand Hotel, the President (Lieut.-Colonel John Barnsley) in the chair. The committee, in their report, regretted to have to still record the continuation of the depressed condition of trade referred to in the last two annual reports. Having secured the omission from the Operative Plasterers' general rules of the objectionable clause in Rule 8, Clause 16, the committee re-signed the old rules with the operatives for twelve months, from April 1 last. Although the present state of trade fully justified notice being given for a general reduction in wages, the committee, after careful consideration, had decided not to disturb the trade this year. The committee recorded with pleasure the election of Mr. C. H. Barnsley to the office of President of the Institute of Builders, and also the election of Mr. F. G. Whittall as one of the vice-presidents of the Midland Federation of Building Trade Employers. Satisfactory conclusions had been arrived at with the Architectural Association as to the interpretation of the prime-cost clause in the conditions of contract, and "on the question of making good after other trades." A prize of one guinea had again been offered by the Association for competition amongst the masonry students at the Municipal Technical School. The committee recommended that next year a total sum of five guineas should be offered to the students in the classes connected with the building trade at the Municipal Technical School, the details to be arranged after consultation with the headmaster. The total membership was now ninety-two. The balance sheet was described as satisfactory. The President, in

* "The Watch Tower" Illustrated fortnightly magazine for the cultivation of home interests, artistic, intellectual, and practical. Founded by Josef Aug. Lux, with the collaboration of the highest authorities. (Hohe Warte. Illustrierte Halbmonatschrift für die Künstlerischen, Geistigen und Wirtschaftlichen Interessen der Städtischen Kultur. Begründet von Josef Aug. Lux, unter Mitwirkung erster Autoritäten). Lux and Lassig, Vienna. Carl Fleischer, Leipzig.

moving the adoption of the report, said the work of the Association during the past year had been chiefly of a routine character. The report opened with an expression of regret that the condition of trade had not improved during the year. They had to deplore depressed trade last year, and he thought, on the whole, they had again to deplore still more depression this year. The motion was seconded by the vice-president (Mr. J. B. Whitehouse), who remarked that the committee were refraining from giving notice of reduction of wage, although many considered that the depression in trade justified such a course. He thought they held that trade was not to be revived by cutting down men's wages. What they wanted to do was to encourage the men to give them of their best. Lieut.-Colonel Barnsley was re-elected President for the ensuing year, and Mr. J. B Whitehouse vice-president. A committee and other officers were appointed. The annual dinner followed in the Grosvenor Rooms at the Grand Hotel. Lieut.-Colonel J. Barnsley, V.D., occupied the chair, and among those present were the Lord Mayor (Councillor R. H. Berkeley), County Alderman J. Bowen, Councillor Whittall, Messrs. T. Cooper (President Birmingham Architectural Association), J. B. Whitehouse (vice-chairman of the Master Builders' Association), C. H. Barnsley (President, Institute of Builders), J. Sharman Wood (President Midland Federation), and Alderman Bigwood (secretary). The loyal toasts having been honoured, the toast "Success to the Birmingham Builders' Association and the Trade of the City" was proposed by the Lord Mayor, who expressed regret that the state of trade generally was not satisfactory. The building trade might fairly represent what was happening in other trades; and it was significant to observe that the number of plans submitted last year at the city surveyor's office numbered 1,563, as compared with 2,352 in the preceding year. He hoped that there were better times in store in the near future. They could not, however, help looking with anxiety at the great number of men unemployed at the present moment. If it should be a hard winter that number would be increased. The Corporation committees, who were in the habit of engaging temporary workmen, would, he felt sure, do all that was possible in the way of putting work to the front. The President, acknowledging the toast, said Birmingham men were proud of its institutions. The year had been crowned with that crowning blessing—the Welsh water. The toast "The Architects and Surveyors" was proposed by Alderman Bowen, and Mr. Thomas Cooper replied on behalf of the Birmingham Architectural Association. "Kindred Associations" was submitted by Mr. Whitehouse, and acknowledged by Mr. C. H. Barnsley. Councillor Whittall proposed the health of "The Visitors," and Mr. W. H. Kenrick replied.

BUILDING BY-LAWS.—The dispute between Mr. Justice Grantham and Chailey Rural Council in regard to the plans of a cottage which the judge proposes to build at Barcombe advanced another stage on the 18th inst. Sir William had given notice to the Council that, in spite of their refusal to pass the plans, he intended to go on with the building, and, in accordance with instructions, Sir William's employees started work. They met with no interference on the part of the Chailey Rural Council's officials. The clerk has written to Sir William stating that, in the Council's opinion, his letters to that body fully establish the necessity of any action the Council has taken in the discharge of its duty as the sanitary authority. A special meeting of the Council is to be held to decide what action shall be taken now that Sir William has gone on with the building before the plans have been passed.

THE TARIFF COMMISSION.—The Tariff Commission has held four meetings during the past fortnight at the Whitehall Rooms, under the chairmanship of Sir Robert Herbert, making seventy-five sittings to date. At the last four meetings evidence was taken in regard to the engineering, building, furniture, and textile trades. The witnesses examined in each section were as follows:—*Engineering*—Mr. John McLaren (J. & H. McLaren, Midland Engine Works, Leeds, engineers), and Mr. George Cradock (Geo. Cradock & Co., Wakefield, wire drawers and rollers). *Building*—Mr. J. Howard Colls (Colls & Sons, 5, Coleman-street, E.C., builders and contractors). *Furniture*—Mr. W. H. Greenfell (M.P. for the Wycombe Division of Bucks.) made a preliminary statement on the history and development of the trade of High Wycombe and district, and the following witnesses were examined:—Mr. Walter Birch, of William Birch, Ltd., High Wycombe, and 370, Euston-road, London (chair manufacturers, cabinet makers, and upholsterers); Mr. Charles Skull, of W. Skull & Sons, Ltd., High Wycombe, and 45, Berners-street, W. (chair manufacturers, cabinet makers, and upholsterers). *Textiles*—Mr. James Mackay (Palmer & Mackay, Trowbridge, woollen manufacturers); Mr. H. Lovell Hewitt (Kemp & Hewitt, Ltd., Innox and Silver-street Mills, Trowbridge, woollen manufacturers); Mr. Alfred Sykes (Joseph Sykes & Co., Ltd., Brockholes, near Huddersfield, woollen manufacturers).

THE LECKY MEMORIAL, DUBLIN.—A meeting of the executive committee of the Lecky Memorial was held on the 20th inst. at 45, Merrion-square. It was proposed by the Dean of St. Patrick's, and seconded by Mr. Justice Ross, and passed, that Mr. W. Goscombe John, A.R.A., be commissioned to execute the statue of the late Right Hon. W. E. H. Lecky, for which a site has been granted within the precincts of Trinity College, Dublin.

APPOINTMENT.—The members of the Officers and Clerks Committee sat at the Guildhall on the 22nd inst. for the purpose of making a final selection of candidates for the vacant position of City Surveyor. The list of twelve candidates previously selected was reduced to five, their names being:—Mr. F. Brown, of the London County Council Department, 19, Charing Cross-road; Mr. J. E. Crouch, 29, Basinghall-street; Mr. S. Perks, 5, Crown-court, Cheapside; Mr. G. W. H. Prescott, Urban Council Office, Tottenham; and Mr. F. Sumner, Surveyors' Department, Plumstead. The *City Press* understands that an effort will be made by several members to induce the Corporation to increase the commencing salary of the office from 1,000*l.* per annum to, probably, 1,400*l.*

ROLLER BEARINGS FOR RAILWAY CARRIAGES.—An experiment, which serves to demonstrate in a striking matter the efficiency of roller bearings, has been in progress by the London, Brighton, and South Coast Railway Company since January last year. In that month the company commenced the regular use of a bogie coach fitted with the "empire" type of roller bearings. After experimental runs extending over an aggregate of 80,000 miles, the results were considered so satisfactory that further tests are now being conducted with the aid of a complete train of vehicles with similar bearings. For the purposes of comparison, a train of identical composition but with ordinary bearings is to be run along the same route and for equal distances. Records will be kept of coal consumption in each case, and if the anticipated saving of 10 lb. per train-mile should be realised, there is every reason for hoping that the adoption of roller bearings may become universal. It has already been demonstrated that the motion is far more pleasant for passengers, and that trains can be started much more rapidly than with ordinary bearings. This last point is of considerable importance to lines upon which it is necessary to provide services with very short intervals between the trains.

REREDOS, ST. MARGARET'S CHURCH, MOUNTAIN ASH.—At St. Margaret's Church, Mountain Ash, recently, the Bishop of Llandaff unveiled and dedicated a reredos. The design of the reredos is Early English in character, and is executed in Caen stone. The spandrils between the gables of the central portion, a the arches of the wings are of selected alabaster. The clustered columns carrying the canopies of niches, in which are placed the sculptured figures, are of green Connemara and red Ogwell marble. The copings of the gables between the niches rest on carved angels with extended wings, and the reredos proper is surmounted with richly-carved ornament. The retable is of pink alabaster. The plinth immediately under the base of the old structure is green stone from the Bridgend quarries. The work has been executed from the designs of Mr. Bruce-Vaughan, of Cardiff, by Messrs. H. H. Martyn & Co., Cheltenham.

CAPITAL AND LABOUR.

EMPLOYMENT IN THE BUILDING TRADES.—Employment in the building trades continued dull during October, and on the whole was rather worse than in September. It was also worse than a year ago. Employment with carpenters and joiners was bad generally, and worse than a month ago and a year ago. The percentage of unemployed trade union carpenters and joiners was 8·3 at the end of October, compared with 7·0 at the end of September, and 5·6 at the end of October, 1903. With plumbers it was dull generally. The percentage of unemployed trade union plumbers was 9·1 at the end of October, compared with 9·5 at the end of September, and 6·6 a year ago.—*Labour Gazette.*

Legal.

ACTION BY AN ARCHITECT FOR FEES.

THE case of Worley *v.* Jay came before Mr. Justice Ridley, sitting without a jury, in the King's Bench Division on the 17th inst., an action by the plaintiff, Mr. C. H. Worley, an architect, to recover from the defendant, Mr. J. W. Jay, 115*l.* professional fees.

Mr. Abel Thomas, K.C., and Mr. Mellor appeared for the plaintiff, and Mr. J. Eldon Bankes, K.C., and Mr. Ernest Pollock for the defendant.

Mr. Abel Thomas, in opening the case, said the action was brought by the plaintiff, who for many years had practised as an architect in Welbeck-street, W., to recover from the defendant his fees for services rendered. It appeared that Mr. Worley had a private residence in the neighbourhood of Potters Bar, and Mr. Jay, the defendant, also resided there. The plaintiff claimed 115*l.* for work done in preparing plans and getting estimates for the erection of some stables, coach-house, and cottages on the defendant's premises. The pleaded defence was that plaintiff did no work at the request of the defendant and that his fees were excessive. The building work was never carried out, but an estimate was obtained, and therefore plaintiff was entitled to the amount he claimed. The defendant also pleaded that a condition precedent to the plaintiff's employment was that the building of the stables, coach-house, and cottages from the plaintiff's plans should not exceed the cost of 1,000*l.* This the plaintiff denied.

Mr. Bankes said that the defendant's case was that the plaintiff understood that he was not prepared to build unless plaintiff could produce plans of buildings which would not cost more than 1,000*l.*, and that if the defendant did not build he should pay the plaintiff 5*l.* 5*s.* for the plans and 3*l.* 3*s.* for taking out the quantities. The defendant only gave the plaintiff instructions to do the work upon the stipulation that he was not going to spend more than 1,000*l.*, and if the plaintiff chose to produce plans of buildings which would cost more than 1,000*l.* to erect, that was his look-out. Plaintiff, therefore, did the work at his own risk.

Mr. C. H. Worley, F.R.I.B.A., examined by Mr. Thomas, said he had been in practice for about twenty-five years. On February 3, 1903, defendant called at his office and said he desired to build stables, etc. Defendant asked him to advise him on the matter. Witness did so, and took down particulars of the accommodation required. A question was asked as to what his fees would be. Witness replied that they would be 5 per cent. on the cost, with the additional charges of taking out the levels. Defendant did not raise any objection to that. It was not true that he, at this time or at any other, agreed to prepare the plans for the stables and cottages for 5*l.* 5*s.* At this interview defendant never said anything about 1,000*l.* being the amount he wished to spend. Having regard to the particulars he took from the defendant, it would be impossible to erect the buildings for 1,000*l.* or anything like it. Shortly after that he went with the defendant to the site. After that he prepared two alternative sketches. They were drawn 16 ft. to the inch. Defendant approved of one, from which the plans were subsequently drawn. It was decided that he should draw them to the usual scale of 8 ft. to the inch, so as to obtain tenders. About March 18 he had an interview with the defendant, when he returned the sketch. Defendant then asked if the buildings would be likely to cost 1,000*l.* Witness replied that that was an absurd figure, because the cottages themselves would cost about 400*l.* each. Then the defendant suggested that he (plaintiff) should go on and get tenders, and see what the price actually would be. Defendant afterwards instructed him to procure tenders. He afterwards attended on the site and took levels, prepared the specification, and got a tender from a Mr. Lewis. That tender was for 2,990*l.* Defendant called and saw him some time after that. Defendant said that the estimate was a good deal more than he desired to spend, and witness suggested that he should endeavour to reduce the cost. Defendant, however, did not tell him the amount he wished to spend. Witness altered the plans and reduced the amount some 300*l.* or 400*l.* The next thing he heard was on September 23, when the defendant rung him up on the telephone, and said he had decided to abandon building altogether. Defendant said, "I suppose I owe you something." Witness replied that he did. Then defendant said, "I propose sending you a cheque for 5*l.* 5*s.*" Witness replied, "You are joking," and then the telephone was rung off.

He then sent in his account in the usual way. His charges were usual. He had never understood that he was to prepare plans for buildings which were not to cost more than 1,000*l.* He had charged the defendant 5*l.* 5s. with respect to the work he had done in connexion with some negotiations between Mr. Alderman Strong and the defendant as to the purchase of a piece of the defendant's land by Mr. Alderman Strong. He had prepared a plan and discussed the matter both with Mr. Jay at his house and also with the architect representing Mr. Alderman Strong.

Cross-examined by Mr. Bankes,

He was a busy man, but he recollected the details of this business pretty fairly. He told the defendant what the Institute charges were. He did not have a discussion with the defendant as to whether he should receive 2 per cent. or 2½ per cent. He had never suggested that he should have the quantities got out for 3*l.* 3s. He could not have suggested such a thing, as such a figure as that was ridiculous.

His lordship: The figure is ridiculous. I do not think that any architect could have said that.

Cross-examination continued,

I suggest that at every interview you have had with the defendant he always endeavoured to make it plain that the utmost he would spend was 1,000*l.*?—I cannot help what you suggest, but it is not the fact.

This being the plaintiff's case, Mr. Bankes said he would at once call his evidence. Accordingly,

Mr. Jay, the defendant, examined by Mr. Bankes, said he was a partner in a business in Oxford-street. His house was a small one, his present stables being close by. The accommodation he had at present was a two-stall stable, coach-house, harness-room, and cleaning-room. He was on visiting terms with the plaintiff, who told him that his stables were a disgrace to his house, and an eyesore. Witness told him that he had got 1,000*l.* to spend, and plaintiff said he would get out plans for buildings at that price. At a subsequent interview he asked paintiff what his charges would be, and he said 5*l.* 5s. and 2½ per cent. Plaintiff prepared the sketches. At several interviews the question of price was mentioned. Plaintiff said he would get a builder's clerk to get out the quantities, but that would cost 3*l.* 3s. Witness agreed to pay that. He afterwards told plaintiff that he could not afford to spend so much as 2,400*l.* on the buildings, and offered to send him on a cheque for the 5*l.* 5s. and the 3*l.* 3s. Plaintiff told him over the telephone that he must be silly to suggest such a figure.

His lordship at this stage said he did not think the plaintiff could substantiate his claim to the 5*l.* 5s., his fees in connexion with the negotiations with Mr. Alderman Strong.

Mr. Thomas: I agree, my lord.

The defendant was then cross-examined by Mr. Thomas. He said he wanted four stalls, two loose boxes, room for six carriages, and two cottages. He was under the impression that building these would cost him about 1,000*l.*

As a business man, do you think they could be built for 1,000*l.*?—Well I think from 1,000*l.* to 1,500*l.*

Cross-examination continued,

He approved the plans. It did not strike him that he was getting a good deal for his 5*l.* 5s.

Re-examined.

He had never had any experience of building at all. He did not know what a brick would cost. He should not have gone into the matter at all if he had thought that the cost of the buildings would be something near 3,000*l.*

Mrs. Florence Jay, the wife of the defendant, having given evidence, the defendant's case was closed.

Mr. Bankes then addressed his lordship on behalf of the defendant, Mr. Thomas not being called on to reply

Mr. Justice Ridley, in giving judgment, said he did not think the defendant had made out that it was a term of the plaintiff's employment that the cost of the buildings should not exceed 1,000*l.* Having regard to what the defendant wanted, it was quite impossible for it to have been in the mind of either the plaintiff or the defendant that all that could be got for 1,000*l.* He thought he ought to find in favour of the plaintiff. He accordingly gave judgment for him for the sum claimed, less the 5*l.* 5s. he had previously mentioned.

Mr. Thomas: That will be judgment for the plaintiff for 94*l.* 19s. beyond the 15*l.* 15s. paid into court.

His lordship: Yes.

Mr. Bankes: I suppose the plans will belong to us on payment of the money?

His lordship: Yes. I had a case about that the day before yesterday. I then said I should follow the ruling in Ebdy *v.* McGowan."

Mr. Thomas said the plaintiff would hand the plans over, of course.

ARCHITECT'S ACTION AGAINST SURVEYOR FOR FEES.

THE case of Norton *v.* Tracy came before Mr. Justice Lawrance and a common jury in the King's Bench Division on the 21st inst., an action by the plaintiff, Mr. Chas. Harold Norton, an architect, against the defendant, Mr. C. F. Tracy, a surveyor, for fees. The defence was a denial of liability. The defendant had also counter-claimed against the plaintiff for damages, but the counter-claim was now withdrawn.

Mr. Oliver appeared for the plaintiff, and Mr. Shaw for the defendant.

Mr. Oliver, in opening the plaintiff's case, said his client brought the action to recover from the defendant two sums of 50*l.* each, and also a sum of 20*l.* for extra work. The plaintiff had given the defendant credit for 20*l.* received, but he should have given credit for 30*l.*, so that that reduced the claim to 90*l.* The facts of the case were as follows:—In the early part of 1899 the plaintiff and the defendant were very friendly, and the defendant was desirous of erecting a block of flats in Stoke Newington, and he approached the plaintiff to draw the plans and specifications. After negotiations it was agreed that the plaintiff should receive for this work a fee of 50*l.* The plaintiff promised to look after the work and to see that it was carried out according to the plans. The erection of the flats having been started, defendant had to get assistance, and he applied to the plaintiff to go to the works more often that he had expected he would have to do, and to give certificates. As this entailed extra work on the plaintiff, defendant agreed to give the plaintiff 20*l.* extra remuneration. As the work went on the defendant advanced to the plaintiff sums which amounted in the aggregate to 30*l.* After that work was finished negotiations were again entered into with regard to building another block of flats, and the result was that the defendant promised, in consideration of the plaintiff drawing the plans for the second block of flats, to give plaintiff 50*l.* The plaintiff made the plans and defendant approved of them. Then the defendant found he was not in a position to commence building, and the result was that the work had to stand over. This went on until the latter part of 1903, when there came about some small disagreement between the parties. Subsequently the plaintiff wrote to the defendant stating that he must have some money, and ultimately the defendant wrote that he did not consider he owed the plaintiff any money at all, saying that the plaintiff's work had been no use to him. Plaintiff then commenced the present action. Defendant had claimed damages against the plaintiff, saying that through plaintiff he had lost 1,500*l.*, but that claim was now withdrawn. The only thing to be decided now was whether the plaintiff had carried out the defendant's instructions.

Mr. Chas. Harold Norton, examined, said he was an architect, practising in Bedford-row, W.C. In 1899 the defendant approached him with regard to making plans for the erection of flats at Stoke Newington. He arranged with the defendant that he was to be paid 50*l.* for drawing the plans. The defendant built those flats. Witness obtained the sanction of the District Surveyor to the plans, and he prepared the specification. Defendant afterwards asked him to superintend the building of the flats, and to give certificates. Defendant agreed to pay him 20*l.* for that work.

His lordship said if the plaintiff relied on a letter, dated August 21, 1900, as a contract, it required a stamp.

Mr. Oliver said he would withdraw the letter in those circumstances.

Examination continued,

After the buildings were finished the defendant applied to him to make the plans for another block of flats. After negotiations witness agreed to do the work for 3 per cent. on the estimated cost of the building, if erected, and 1 per cent. if the scheme should fall through. On May 5, 1902, the defendant wrote offering to pay witness 2½ per cent. on the estimated cost of the building. On May 7 witness replied, agreeing to reduce the amount to 2½ per cent. on the cost of the building. He prepared the plans for the block of flats, and also the specification; but the defendant never erected the flats. He had applied to the defendant for the 1 per cent. on the estimated cost of the building—viz., 50*l.* Defendant had at various times paid him sums amounting altogether to 30*l.* Up to November, 1902, defendant had never denied his liability. He heard on Tuesday, the 15th inst., that the counter-claim had been withdrawn.

Cross-examined,

At the time the contract was entered into it was proposed to build both blocks of flats at the same time. At the time that the contract of May 12, 1899, was entered into two sets of sketch plans were prepared by a Mr. Stubbs, an architect, and were given to witness by the defendant. He thereupon prepared the plans for both the blocks of flats it was proposed to erect. The defendant at that time was only able to obtain enough money for putting up one block of flats. The erection of the first block was very disastrous to the defendant. The first builder failed to carry out the work, and a new builder had to complete it at an extra cost. There was a great deal of trouble in the erection of the buildings.

Did not the defendant call your attention to the fact that he had been a very heavy loser over the erection of the first block?—No; he said he was not making much profit on it.

Did you not on that occasion say that if he would employ you as architect to superintend the next block at 2½ per cent. you would waive the balance owing to you on the first block?—Certainly not.

His lordship (to Mr. Oliver): What is it you now claim?

Mr. Oliver: My claim is for 50*l.* in respect of the first block, and 50*l.* for the second, and from that there is to be deducted 30*l.* That will leave 70*l.*

This being the plaintiff's case,

Mr. Tracy, the defendant, called and examined, said that in 1899 he was very friendly with the plaintiff, who was a young man just starting business. At that time he proposed to put up both blocks of flats at the same time. The letter of May 12, 1899, referred to plans for both blocks. As a matter of fact plans for both blocks were passed immediately, and were passed by the District Surveyor shortly afterwards. He failed for the time to get the necessary finances to enable him to put up the whole scheme. He therefore proceeded with the erection of one block only at that time. There was a great deal of trouble with regard to the flats—it was a fearful job. The first builder overdrew, and he had to employ another one at a great deal of additional expense. It ruined the job. Subsequently he had a conversation with the plaintiff with regard to the scheme altogether. A conversation took place between them about payment. Plaintiff said they had both had a loss on the first block, and the best thing was to wipe the whole thing out and start afresh with the new block. Witness was to pay plaintiff 2½ per cent. on the cost of the buildings. He stipulated that that was only in the event of the buildings being proceeded with. There was no foundation for saying that he agreed to pay plaintiff an extra 50*l.* whether the buildings were erected or not. He had, up to the present, failed to raise the necessary finances for the erection of the second block of flats.

Cross-examined,

Mr. Smith, the builder of the first block, was a friend of his. He used to write to the architect for the certificates for Smith. He was a surveyor himself, but at that time he was not practising. He had never suggested to the plaintiff that he was to receive 50*l.* for preparing the plans for the first block. It was understood that plaintiff was to receive 50*l.* for the plans of the two jobs. The second block of flats would be put up as soon as he could get finances to do so. The plaintiff took on the work in a speculative manner.

This being the defendant's case, his lordship asked the learned counsel what the questions for the jury were.

Mr. Oliver said that the reason why the jury were asked to try the case was because there was a counter-claim. That counter-claim was now withdrawn. If it had not been for that counter-claim the case would have been tried before his lordship without a jury. The only question seemed to be whether there was the agreement by the defendant to pay the 1 per cent. upon the second block of flats made on May 5, 1902.

His lordship said he should tell the jury that it was a question for him to decide whether there was a contract which entitled the plaintiff to the 1 per cent. There was no acceptance by the defendant in writing of the plaintiff's suggestion that he should have the 1 per cent. He thought it was an attempt to add to the contract of May 5 something which was not accepted by the defendant.

Mr. Oliver contended that the three letters taken together made the contract.

His lordship: It was only a proposal made by the plaintiff to the defendant that if the

building was not proceeded with he should have 1 per cent. That was never accepted by the defendant at all. There must be judgment for the defendant, with costs, on the claim, and for the plaintiff on the defendant's counter-claim, with costs.

Mr. Shaw said that the defendant withdrew the counter-claim last week, and he did not see what additional cost the plaintiff could have been put to by it.

His lordship said that was a question for the taxing-master to deal with.

ACTION BY A SURVEYOR FOR FEES.

THE case of Klenck *v.* Farris and others came before the Court of Appeal, composed of the Master of the Rolls and Lords Justices Stirling and Mathew, on the 16th and 17th insts., on the appeal of the plaintiff, Mr. J. M. Klenck, a surveyor, from judgment entered at the trial before Mr. Justice Darling and a common jury in the King's Bench Division on April 14 last. (The case was reported in the issue of the *Builder* of April 23, 1904.)

The action was brought by the plaintiff against the defendants, Messrs. C. Farris and E. F. Fitch, churchwardens, and Messrs. A. W. H. Little and T. Freeman, overseers, of the parish of St. Ethelburga, to recover 78*l.* 15s. for work done by the plaintiff as surveyor for and on behalf of the defendants. The defence was a denial of liability.

The plaintiff's case was that he had, before the year 1900, been engaged on many occasions by the overseers of St. Ethelburga in the valuation of property, etc. In 1900 there was a scheme to run tube railways through the parish of Bishopsgate, it being proposed that one of the lines should pass under the church of St. Ethelburga. It was thought that the railway might injure the church and other buildings, and on December 6, 1900, a meeting of the vestry was held, at which the defendants were present. At the meeting a letter was read stating that it was proposed to call a meeting on behalf of the Ward of Bishopsgate to decide the question of opposing the Bills for the railways in Parliament. It was then decided that the two churchwardens should attend that meeting, and the plaintiff's case was that he was instructed also to attend the meeting, as an expert on behalf of the vestry. The plaintiff attended the public meeting, when it was decided to start an organised opposition to the railway Bills, and a committee of subscribers was formed. The plaintiff was one of the committee, and he attended the meetings of the committee. On December 12, 1901, he prepared a report addressed to the overseers and churchwardens, and that report was read at a meeting of the vestry. At that meeting one of the members asked the plaintiff if he expected to be paid for his services, and the plaintiff replied that he did. In April and July, 1902, the plaintiff sent in further reports, and in March, 1903, he sent in his account, but received a letter stating that it could not be entertained, as he had no instructions to act for the parish. In cross-examination the plaintiff said he had subscribed 5*l.* 5s. to the funds of the committee, and had attended frequently before the Board of Trade and the Parliamentary Committee. The committee, owing to lack of funds, ceased to exist in February, 1902. After this he still continued to act on behalf of the parish, and sent in two reports to the vestry. About one-half of his claim was for work done before the committee ceased to act, and the remainder for work done after February 3, 1902, when the committee ceased to exist. The defendants' case was that all that the plaintiff was appointed to do was to represent the vestry at the public meeting, and so far as he did any work he did it as a voluntary member of the committee of subscribers. Mr. Justice Darling said he should take the opinion of the jury on the question of amount in case there was an appeal on the point of law. He accordingly asked the jury to say what amount the plaintiff was entitled to for work done down to February 3, 1902, and for work done after that date. The jury found that the plaintiff was entitled to 25*l.* under each head. Mr. Justice Darling then gave judgment for the defendants on the point of law, but granted a stay of execution in view of the plaintiff appealing from his judgment. Hence the present appeal of the plaintiff.

Mr. Lewis Thomas appeared for the appellant, and Mr. Ernest Pollock for the respondents.

At the conclusion of the arguments of counsel, the Master of the Rolls, in giving judgment, after stating the facts, said it was admitted that the defendants could not be sued as individually liable. It was said, however, that, by virtue of the Act, 59 George III., cap. 12, section 17, the defendants could be sued as representing the parish. That Act did, for certain special purposes, vest certain buildings in the churchwardens and overseers of a parish, and created a limited power in certain circumstances to sue them as representing the parish. It did not, however, cover such a claim as the present one for services rendered in advising those who were opposing the tube Bill in Parliament. The case was not within the section. There was, therefore, no statutory power to sue the defendants in their representative capacity, and the action accordingly fell to the ground. He was also of opinion that there was no evidence of any contract to employ and pay the plaintiff. He thought the appeal failed on all grounds.

The Lords Justices concurred, and the appeal accordingly was dismissed, with costs.

PLASTERER'S ACTION AGAINST A BUILDER.

THE case of Morris *v.* Cooke came before the Court of Appeal, composed of the Master of the Rolls and Lords Justices Stirling and Mathew, on the 22nd inst., on the appeal of the plaintiff from a judgment of Mr. Justice Ridley at the Hereford Assizes.

Mr. Disturnal, Mr. J. B. Matthews, and Mr. Bosanquet appeared for the appellant, and Mr. Amphlett, K.C., and Mr. Adler for the respondent.

Mr. Disturnal said the action was brought to recover damages for personal injuries sustained by plaintiff through the alleged negligence of the defendant or his servants. At the time of the accident the defendant was engaged as a builder and contractor in the erection of a post-office at Ledbury, and under his contract with the post-office authorities he had, of course, to find all materials and plant necessary for the building. The plaintiff was a plasterer, and he was engaged by the defendant upon the post-office under a contract to do a certain small amount of the plastering work on the outside of the building. His contract was made upon the basis of an extract from the original quantities relating to this particular plastering, and the plaintiff tendered upon that basis for a sum of about 39*l.*, and he was engaged by the defendant to do that work. In the course of that work the scaffolding upon which plaintiff was standing broke down by reason of one of the putlogs being defective, and plaintiff was precipitated to the ground, and he was seriously injured. The plaintiff complained that the learned judge did not deal with what was the real issue in the case, but decided the case against him on an issue which was really not relevant, and as to which he said there was no evidence to support it. One of the putlogs used for the scaffolding was admittedly defective, and it broke in two by reason of the weight put upon it, and brought about the accident. It was admitted, and it was common ground at the trial, that it was the defendant's duty to provide the materials for the scaffolding. It was proved beyond a doubt that the scaffolding broke down through the defect in the putlog, which was part of the material it was the defendant's duty to supply. He (counsel) submitted that, if that were so, there was, at any rate, a *primâ facie* case for the learned judge to consider.

The Master of the Rolls: Who made the scaffolding?

Mr. Disturnal said there was a controversy about that. His first point was that there was that duty upon the defendant to supply the material from which the scaffolding had to be constructed. The scaffolding broke down, and the learned judge had not considered how far that negligence was the cause of the accident, and how far the plaintiff himself was guilty of anything which contributed to it. There was a controversy during the course of the case as to which person had constructed the scaffolding, and there was some conflict of evidence on that matter. The plaintiff's evidence was that the putlogs which had previously been there for the building of the wall for some reason had been removed, but the holes were in the wall where they previously had been. He said he told one of the defendant's men that he wanted scaffolding for his work, and that thereupon the defendant's foreman directed one of his men to go and build the scaffolding. That man's name was Nichols. Nichols got the assistance of a labourer in the employment of the plaintiff, named Preece, and Nichols handed up the putlogs to Preece, and the latter put them in the wall. The plaintiff's view was that he, wanting the scaffolding for the purpose of his work, the defendant's foreman gave Nichols instructions to put it up, and the latter got the plaintiff's man to assist him. On the other hand, the defendant said that it was the duty of the defendant to erect the staging.

Lord Justice Mathew: This was a question of fact of a simple kind, and I understand the learned judge found it against you—viz., that it was your duty to erect this scaffolding.

Mr. Disturnal: I submit there was no reasonable evidence to support the learned judge's finding. It was admittedly the duty of the defendant to supply this material which caused the accident. Even though it was the duty of the plaintiff to erect the scaffolding out of the material supplied by the defendant, it was necessary for the learned judge to decide whether the plaintiff had been guilty of contributory negligence. He never considered that point at all. What the learned judge did decide was this. He said it was the duty of the plaintiff to erect the scaffolding out of the materials supplied by the defendant, that his man did erect it, and therefore that the plaintiff was responsible for that, and he could not attribute his injuries to the defendant. The plaintff said his contract was to do the plastering, and to use the scaffolding which was on the building. The defendant said it was the duty of the builder to supply scaffolding and erect it, but in order to get rid of the *primâ facie* duty which arose from his contract to erect the scaffolding, he sought to draw a distinction, which he said depended upon some trade custom, between what he called scaffolding and staging. The defendant said:—"Although I am bound by my contract to erect scaffolding, yet a putlog is no part of scaffolding, but is part of the staging which, by the custom of the trade, it is the duty of the sub-contractor to put up." Upon that the learned judge found against my client. That custom was never suggested before the trial, and it was never put to my client. He was never asked specifically whether there was any such trade custom as that. All he was asked was as to what had been his practice under other contracts he had had. When the defendant got into the box he stated there was such a general custom, that it was the duty of the builder to supply the materials, and the duty of the sub-contractor to erect the scaffolding, and his duty to put in the putlogs.

The Master of the Rolls: There is abundant evidence to show that the defendant fulfilled his contract to supply material for the purpose of the scaffolding.

Mr. Disturnal said it was a breach of duty on the part of the defendant to leave lying about the place a piece of timber which was improper to be used for scaffolding.

Lord Justice Mathew disagreed with this submission.

Mr. Disturnal argued that the case had not been properly tried, and said it ought to be sent back for a new trial.

Mr. Matthews followed on the same side.

The Master of the Rolls, without calling upon counsel for the respondent, in giving judgment, said he thought there was evidence to justify the learned judge finding as he had done. In his opinion there was no legal evidence of liability on the part of the defendant for what had happened.

The Lords Justices concurred, and the appeal was accordingly dismissed, with costs.

PATENTS OF THE WEEK.

APPLICATIONS PUBLISHED.*

16,221 of 1903.—F. M. MCLARTY: *Apparatus for Coating, Dressing, Moulding, or Dividing Metal, Stone, or the like, and for Analogous Operations.*

This relates to a machine, the arrangement consisting in the combination with the main slides and saddles and parts for carrying the tools, or tool holders, and the portion of the framing necessary to carry the same, of means for traversing, independently of the main shaft of the machine, the main slides, saddles, and part carrying the tools, or tool holders, and means for enabling the material to be operated upon in lines corresponding to the line of travel of the table whether or not the counter balancing arrangement be used in combination therewith.

22,725 of 1903.—J. H. WHITTINGTON: *An Appliance for Forward Drying of Bricks, and the like, in Continuous Downdraught Kilns.*

An appliance provided with grates near the bottom of the large chamber on which the fire rests and means being so arranged that the heat of the products of combustion generated in the appliance are drawn first upward through the opening into the small chamber and thence downward through feed holes into the kiln for the purpose of heating or drying.

22,801 of 1903.—THE MASBRO FOUNDRY COMPANY, LTD., and G. H. BOARDMAN: *Barless Fire Grates.*

This invention applies mainly to barless fire-

* All these applications are in the stage in which opposition to the grant of Patents upon them can be made.

places which are fitted with splayed tile panels either slabbed or fixed in a metal frame. A raised platform extending to these splayed panels forms the top cover of a chamber containing an ashpan, the front of which chamber is formed by a movable vertical panel or plate fitting up to the platform and extending to the full opening of the splayed panels. The above-mentioned platform forms the front part of the well, containing the fire, and the admission of air to the chamber below it can be controlled.

27,271 of 1903.—J. RUSSELL: *Means of Jointing Together Pipes, Rods, and the like.*

Means of jointing together pipes, rods, and the like, consisting of screw threads of different diameter and different pitch, formed upon the contiguous end portions of the respective members to be united, and a union socket having its opposite end portions threaded to screw upon said threaded end portions of the respective members, with or without a washer or packing ring of compressible material interposed between the contiguous extremities of said members.

27,338 of 1903.—R. W. HOBDEN: *Method of and Means for Constructing Staircases.*

A method of constructing fireproof staircases, consisting of the employment of trough-shaped receptacles which are first placed in position to form the staircase, and then filled with cement or other suitable material.

27,510 of 1903.—E. KOLBASSIEF: *Manufacture of Impermeable Blocks and Composite Structures from Cork, and other Material.*

A process for manufacturing impermeable material, consisting in sub-dividing a mass of suitable nature into any desired number of smaller parts, in coating subsequently each of these parts with a layer of impermeable substance, and finally in cementing them together in the required shape or form.

27,706 of 1903.—COMYN CHING & CO., LTD., and W. THWAITES: *Ventilators.*

A perforated baffle plate or grating formed of plastic materials, for use in or as a ventilator, provided with holes which traverse the thickness of the plate or grating obliquely and have their area greater at one extremity than at the other, said holes being produced by pressing the material between dies having projections adapted to enter the thickness of the plate, and to co-act with one another from opposite sides thereof.

28,468 of 1903.—S. OLIVER and HATTERSLEY BROTHERS, LTD.: *Kitchen Fire Ranges.*

Kitchen fire ranges, consisting in the combination with a hinged grate, of a pivoted ratchet lever comprising a forward operating arm, and an inner toothed engaging arm, whereby the grate may be adjusted to different heights vertically.

28,469 of 1903 S. OLIVER and HATTERSLEY BROTHERS, LTD.: *Kitchen Fire Ranges.*

Kitchen fire ranges, consisting of a bar frame provided with horizontal projections on its inner sides, and outstanding vertical ribs on its front faces, in combination with a separately-constructed shelf formed with rear projecting arms having engaging recesses formed in their outer sides adapted to take on to the projections, said shelf being also formed with recesses in its rear edge adapted to take over the ribs.

1,193 of 1904.—J. GARDNER: *Chimney Tops or Ventilators.*

Chimney pots or ventilators in which there is a hood placed some little distance above the terminal of the chimney pot, and a pair of flaps hinged to this hood, and connected rigidly with each other, the whole being arranged in such a manner that while there is plenty of exit for the smoke or foul air the hood at the highest point and the flaps below cover the crevices and prevent the wind from entering the chimney.

7,805 of 1904.—J. WELLS and J. JACKSON: *Machinery for Grinding Slurry, Applicable also for Grinding other Substances.*

A machine for grinding slurry or other substances, comprising a rotating cylinder, the inner periphery of which is formed with a number of troughs or gutters, and a series of grinding discs of a shape and size such that they roll freely in the troughs.

8,021 of 1904.—R. C. MATHEWSON and G. ANDERSON & CO., LTD.: *Apparatus for the Dressing and Moulding of Stone, Marble, and other like Materials.*

An apparatus for the dressing and moulding of stone, marble, and other like materials, consisting of a reciprocatory table, to which is pivoted a top table which can be made to vibrate by means of a lever pivoted to such reciprocatory table, the one extremity of the lever working in a guide in the top table, while the other extremity slides backwards and forwards in an adjustable guide which can be set at any desired angle, the tools for cutting the material being mounted on a side standard, such tools being capable of cutting both forwards and backwards, of being adjusted to move towards or away from the material being operated upon or upwards or downwards as may be found desirable, the combined movements allowing of the stone being cut in a convex, a concave, or in a straight surface.

8,705 of 1904.—J. P. O'DONNELL: *Sand Screening and Shaking Apparatus*

A sand screening or shaking apparatus in which a vibratory movement is imparted to the screen or sieve by the reciprocation of a piston or plunger directly attached thereto whose movement is controlled by a fluid-actuated piston valve which alternately admits fluid pressure to and exhausts it from either end of the cylinder in which said piston or plunger works.

16,975 of 1904.—J. M. MCDOWELL: *Machines for Moulding Building Blocks.*

A machine for moulding building blocks, consisting of a frame, a bed-plate movable within the frame, means guided by the frame and supporting the bed-plate for moving the same, means for moving the supporting means, means for pivotally supporting the frame whereby it may be tilted, and means for locking the frame in position.

13,410 of 1904.—F. NORDMANN and F. SAUERLAND: *Water-closets.*

A water-closet installation, frost-proof, and without stagnant water, in which the inlet pipe opens into a two-way valve placed behind the water-closet seat. When the water-closet is used this valve admits the water to the flushing cistern placed a little above the seat, and after use causes the water still left between the two-way valve and the flushing cistern to run off into the drain in such a way that each time the water-closet is used the weight applied to and removed from the seat produces, through the agency of a suitable system of levers, the filling and complete emptying of the pipes and the flushing cistern, the parts exposed to frost.

18,895 of 1904.—D. DOYEN: *Extensible Railings, Gates, and the like.*

This consists in the use of levers joined together in the form of trellis work, so as to form lozenge-shaped parallelogram-shaped openings in the construction of extensible railings, doors, gates, and the like.

19,438 of 1904.—J. W. LEADLEY: *Seats for Water-closets.*

A water-closet, consisting in the combination with a back rail integral with the pedestal, of bushed pockets in said back rail, projections on the seat, and pins or studs passing through the projections and into the bushed sockets to form the pivot for the seat.

26,317 of 1903.—J. H. CUTTELL: *Apparatus for Moulding or Casting Paving Slabs, and the like.*

This relates to moulding or casting paving slabs, and the like, and consists of apparatus for causing the plastic substance to settle in the mould, comprising a frame or stand, a table loosely mounted upon said frame; a pair of horizontal shafts geared together and provided with lifters or their equivalent, adapted to alternately raise and let fall the table upon which the mould-box is placed, a heavy metal plate mounted at the end of an arm attached to a vertical shaft, means for raising said plate, and means for swinging said plate clear of said table.

19,132 of 1904.—J. LENNON: *Excavating Apparatus.*

An excavating apparatus, comprising a receiving truck and a transmitting truck, the receiving truck having means for supporting a load, and having its truck frame constructed to permit the transmitting truck to be run completely through it, below the load supported thereby.

20,260 of 1904.—F. SHAY: *Cleansing Openings for Drains, and the like.*

This consists, in the combination with the ferrule, having at its upper end a cap providing an interior downwardly-facing valve-seat, of a float valve, and a valve support, comprising bent wires arranged diametrically of the ferrule, and having their ends journalled in perforations in the walls thereof, said wires being notched to receive each other in final position.

20,281 of 1904.—G. F. RYAN: *Soil Pipe Fittings.*

This consists, in the combination with a main sewer conduit, of a sewage branch and a revent branch both entering the sides of said main sewer conduit, said revent branch having its opening into said main sewer conduit arranged with the lower portion of its wall at said opening within the path of flow from said sewage conduit, whereby the interior of the end of the revent branch is flushed by the discharge from said sewage branch.

20,322 of 1904.—G. BARKER (Perfect Sewer Trap Main Company): *Sewer Traps or Valves.*

This consists in the combination of a valve casing provided between its ends with a reduced portion having a valve-seat, having a groove flared from bottom to top, and a valve located in said seat having a body portion shaped to conform to the valve seat, whereby a tight fit is produced between the same.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

November 8.—By SEDGWICK, SON, & WEALL (at Watford).

Hunton Bridge, Herts.—Premises lately used as gas works, f., p.	£260

November 10.—By TOOTELL & SONS (at Maidstone).

East Peckham, Kent.—"Hall Place Farm," 16 a. 2 r. 22 p., f.	1,300
A plot of freehold land, 2 a. 1 r. 30 p.	150
Meadow and woodland, 8 a. 1 r. 8 p., f.	300
"Ham Field," "Buckhurst Field," and "Lord's Mead," 18 a. 3 r. 18 p., f.	640
"Hale Cottage," f.	540

November 11.—By HARRY BALL (at Bedford).

Bedford.—1 to 15 (odd), Little Thurlow-st., f., w.r. 88*l.* 1s. 6d.	988
2, 4, and 6, Little Thurlow-st., f., w.r. 32*l.* 10s.	420
Thurlow-st., freehold stabling and coach house, y.r. 10*l.* 10s.	130

November 14.—By KEMSLEYS'.

Woodford Green, Essex.—Snakes-la., "Oakley," f., e.r. 45*l.*	570
Chigwell Row.—Hog Hill, freehold building land, 2 a.	400
Romford, Essex.—Hog Hill, freehold building land, 2 a.	170
Chadwell, Essex.—Romford-rd., a block of building land, f.	1,500

By G. W. & H. G. POTTER.

Hampstead.—106, Heath-st. (s.), f., p.	1,400

By P. W. TALBOT & CO.

Pimlico.—Ebury-st., i.g.r. 10*l.*, u.t. 18¼ yrs., g.r. nil	110
Brompton.—Pelham-pl., i.g.r. 14*l.*, u.t. 13¾ yrs., g.r. 2*l.*	110
Ovington.sq., i.g.r. 60*l.* 10s., u.t. 19¼ yrs., g.r. 22*l.*	470
Portman-square.—Duke's-mews, i.g.r. 60*l.*, u.t. 21¼ yrs., g.r. 20*l.*	490
Regent-street.—Nos. 313 and 315, i.g.r. 63*l.*, u.t. 18½ yrs., g.r. 10*l.* 2s. 6d.	730
Hampstead-road.—Robert-st., i.g.r. 38*l.*, u.t. 18¼ yrs., g.r. 12*l.*	295

By WILKINSON, SON, & WELCH (at Brighton).

Brighton.—71, Beaconsfield-villas, f., p.	1,100

Nov. 15.—By DAVID BURNETT & CO.

Commercial-road East.—37, Dean-st. (b.-h.), u.t. 60½ yrs., g.r. 15*l.*, y.r. 35*l.*	410

By DEBENHAM, TEWSON, CO.

Bushey, Herts.—High-st., the Herkomer School of Art and ½ an acre, f., p.	1,300
An antique oak reredos	650
Carved oak raised panelling in studio	220

By E. H. HENRY.

Chiswick.—1A, Blenheim-rd., u.t. 77 yrs., g.r. 14*l.*, p.	1,010

By MARTIN, WHITE, & CO.

Sydenham.—37 and 39, Champion-pk., u.t. 75¼ yrs., g.r. 12*l.* 12s., y.r. 60*l.*	350

By HEPPER & SONS (at Leeds).

Leeds.—Newton-rd., "Newton Green Hall Estate," 14 a. 2 r. 24 p., f.	7,000
Harrogate-rd., "Laurel Bank," f., y.r. 75*l.*	1,700

By MADDISON, MILES, & MADDISON (at Halesworth).

Bramfield, Suffolk.—Two freehold houses, with shop, malting farm buildings, etc., area 1a.	660
Freehold house and 0 a. 3 r. 30 p.	120
"Scot's Hall" (house) and 0 a. 1 r. 29 p. f.	118

By MORLEYS' (at Mason's Hall Tavern).

South Kensington.—152, Earl's Court-rd. (the Earl's Court Restaurant), u.t. 17 yrs., y.r. 260*l.* with goodwill	510

November 16.—By BISLEY & SONS.

Old Kent-rd.—5 to 23 (odd), Trafalgar-rd. ("Scott's-ter."), u.t. 69 yrs., g.r. 100*l.*, y.r. 450*l.*	3,060
Peckham.—Radnor-st., i.g.r. 64*l.* 16s., u.t. 36 yrs., g.r. 1*l.*	880
Rotherhithe.—15 and 16, Matson-st., u.t. 41 yrs., g.r. 3*l.* 10s., w.r. 41*l.* 12s.	270

H. DONALDSON & SON.

Islington.—7, Prospect-pl., f., e.r. 39*l.*	350
Hoxton.—35, Bookham-st., u.t. 30 yrs., g.r. 5*l.*, y.r. 36*l.*	270
15, 16, and 17, Napier-st., u.t. 2¼ yrs., g.r. 10*l.* 10s., y.r. 94*l.*	180
Dalston.—122, Forest-rd., u.t. 46 yrs, g.r. 7*l.* 3s., e.r. 45*l.*	415

C. P. WHITELEY.

Balham.—26, 28, and 32, Henderson-rd., u.t., 83 yrs., g.r. 30*l.*, y.r. 155*l.*	1,455

By BALLARD & MARSH (at Teddington).

Hampton Court, Middx.—Main-rd., a freehold building site	200
Teddington, Middx.—1 to 4, Regent's-cottages, f., w.r. 50*l.* 14s.	470
5, Regent's-cottages (s.), f., w.r. 19*l.* 10s.	270

By FOX & VERGETTE (at Sandy).

Willington, etc., Beds.—Portions of the Cople and Willington Estate, 228 a. 2 r. 6 p., f. (in lots)	8,190

DOUGLAS YOUNG & Co.

South Lambeth.—184, South Lambeth-rd. (S). u.t. 76 yrs., g.r. 10*l*., y.r. 50*l*. £480
Brixton.—43 and 45, Holland-st., with yard and stabling in rear, u.t. 16 yrs., g.r. 80*l*., y.r. 179*l*. 6s. 195
Peckham.—108, High-st. (S), a profit rental of 25*l*. for 13 yrs. 105
Blackheath.—13, Foyle-rd., u.t. 93¼ yrs., g.r. 6*l*. 6s., y.r. 36*l*. 350
Orpington Kent.—2 to 12 (even), King's-rd., f., w.r. 109*l*. 4s. 1,000
Forest Hill.—277 to 283 (odd), Stanstead-rd., area 29,640 ft., f., y.r. 190*l*. 3,200

November 17.—COOPER & GOULDING.

Acton.—3, St. Dunstan's-villas, u.t. 58 yrs., g.r. 8*l*., y.r. 38*l*. 300
Hornsey Rise.—48, Hanley-rd., u.t. 66 yrs., g.r. 8*l*., e.r. 45*l*. 360

By FIELD & SONS.

Camberwell.—89, 91, 93, and 95, Warner-rd., u.t. 27 yrs., g.r. 11*l*. 16s. 10d., y.r. 120*l*. 710

By NEWBON, EDWARDS, & SHEPHARD.

Stoke Newington. — 91, Church-st. (Stoke Newington Constitutional Club), area 6000ft., f., y.r. 80*l*. 1,200
Highbury.—23, Highbury-gr., f., e.r. 85*l*. 1,110

By STIMSON & SONS.

Camberwell.—16 and 18, Lettsom-st., and 1 to 27 (odd), Fowler-st., with land in rear, u.t. 48 to 56 yrs., g.r. 28*l*. 18s., y.r. 490*l*. 3,210
Forest Hill.—Dacres-rd., "Kingates," with stabling, f., y.r. 140*l*. 1,520
Dulwich.—10 and 12, Cornflower-ter., u.t. 74 yrs., g.r. 10*l*., w.r. 44*l*. 4s. 310
Peckham.—244, 246, and 248, St. George's-rd., u.t. 57 yrs., g.r. 4*l*. 10s., w.r. 101*l*. 8s. 890
Stockwell —104, Dalyell-rd., u.t. 60 yrs., g.r. 6*l*., e.r. 36*l*. 340
Old Kent-road.—Cooper's-rd., f.g. rents 16*l*., reversion in 10 yrs. 965
Cooper's-rd., f.g.r. 18*l*., reversion in 28½ yrs. 520
Bermondsey.—Freda-st., f.g.r. 7*l*. 10s., reversion in 23 yrs. 255
Brixton.—Effra-rd., f.g. rents 77*l*. 19s., reversion in 68½ yrs. 2,120
South Lambeth.—Hartington-rd., f.g. rents 24*l*., reversion in 54½ yrs. 755
Shepherd's Bush.—40, Devonport-rd., u.t. 49 yrs., g.r. 10*l*., y.r. 32*l*. 10s. 320
Bowes Park.—7, 9, 11, and 13, Queen's-rd., u.t. 76 yrs., g.r. 26*l*., w.r. 128*l*. 6s. 850

November 18.—By BUCKLAND & SONS.

Newington Butts.—No. 83 (s.), y.r. 115*l*., also l.g.r. 24*l*., u.t. 58 yrs., g.r. 52*l*. 900

By A. PREVOST & SON.

Leyton.—1, Roseland-ter., u.t. 92½ yrs., g.r. 4*l*. 10s., w.r. 27*l*. 6s. 175

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold: c. for copyhold; l. for leasehold; p. for possession; e.r. for estimated rental: w.r. for weekly rental; q.r. for quarterly rental; y.r. for yearly rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; la. for lane; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gdns. for gardens; yd. for yard; gr. for grove; b.h. for beerhouse; p.h. for public-house; o. for offices; s. for shops; ct. for court.

MEETINGS.

FRIDAY, NOVEMBER 25.

Architectural Association. — Messrs. J. T. Micklethwaite & E. Prioleau Warren on "Excavations in Westminster." 7.30 p.m.

SATURDAY, NOVEMBER 26.

The Sanitary Institute (Sessional Meeting to be held at the Guildhall, Nottingham).—Discussion, to be opened by Dr. P. Boobbyer, on "Present-day Aspect of Conservancy Systems." 11 a.m.

MONDAY, NOVEMBER 28.

Surveyors' Institution.—Mr. C. J. Mann on "The Building Surveyor: His Training and Practice." 8 p.m.
The Quantity Surveyors' Association (at the Duke's Salon, Holborn Restaurant). — An Ordinary General Meeting. 4 p.m.
Glasgow Philosophical Society (Architectural Section).—Mr. S. Smith on "The Decay of Stone in Buildings." 8 p.m.

TUESDAY, NOVEMBER 29.

Institution of Civil Engineers.—Further discussion on Mr. J. F. Cleverton Snell's paper on "Distribution of Electrical Energy." 8 p.m.
Architectural Association Camera and Cycling Club.—Mr. C. B. Howdill on "Colour Photography." 8 p.m.
Institute of Sanitary Engineers, Ltd. (Lectures in Practical Sanitary Science).—Mr. W. J. Dibdin, F.I.C., on "Sewage Disposal," II. 7 p.m.
Northern Architectural Association Students' Sketching Club.—Lecture by Mr. F. Caws. 7.30 p.m.

WEDNESDAY, NOVEMBER 30.

Architectural Association Discussion Section.—Mr. E. A. Rickards on "Abstract Form in Architectural Design." 7.30 p.m.
Society of Arts.—Mr. Arthur Lee, J.P., on "The British Canals Problem." The Right Hon. Sir Michael Hicks-Beach, Bart., M.P., will preside. 8 p.m.
Edinburgh Architectural Association.—Mr. W. Crum Watson on "An Architect's Holiday in Portugal." Illustrated by Lantern Slides. 8 p.m.

THURSDAY, DECEMBER 1.

Tramways and Light Railways Association.—Mr. Stephen Sellon on "Running Powers."
Society of Antiquaries.—8.30 p.m.
Leeds and Yorkshire Architectural Society. — Mr. Alexander McGibbon on "Byzantine Architecture." 6.30 p.m.

FRIDAY, DECEMBER 2.

Institution of Civil Engineers (Students' Meeting).—Mr. R. T. McCallum, M.Inst.C.E., on "Midland Railway, West Riding Lines: The Construction of Contract No. 1." 8 p.m.

TERMS OF SUBSCRIPTION.

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PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

	£	s.	d.			
Hard Stocks.	1	14	0	per 1000	alongside,	in river.
Rough Stocks and Grizzles	1	13	0	,,	,,	,,
Facing Stocks ...	2	12	0	,,	,,	,,
Shippers	2	10	0	,,	,,	,,
Flettons	1	8	0	,,	at railway depôt.	
Red Wire Cuts ...	1	14	0	,,	,,	,,
Best Fareham Red	3	12	0	,,	,,	,,
Best Red Pressed Ruabon Facing	5	0	0	,,	,,	,,
Best Blue Pressed Staffordshire ...	4	4	0	,,	,,	,,
Do. Bullnose	4	10	0	,,	,,	,,
Best Stourbridge Fire Bricks.....	4	8	0	,,	,,	,,
GLAZED BRICKS.						
Best White and Ivory Glazed Stretchers	13	0	0	,,	,,	,,
Headers	12	0	0	,,	,,	,,
Quoins, Bullnose, and Flats.....	17	0	0	,,	,,	,,
Double Stretchers	19	0	0	,,	,,	,,
Double Headers...	16	0	0	,,	,,	,,
One Side and two Ends	19	0	0	,,	,,	,,
Two Sides and one End	20	0	0	,,	,,	,,
Splays, Chamferred, Squints	20	0	0	,,	,,	,,
Best Dipped Salt Glazed Stretchers, and Header	12	0	0	,,	,,	,,
Quoins, Bullnose, and Flats.....	14	0	0	,,	,,	,,
Double Stretchers	15	0	0	,,	,,	,,
Double Headers...	14	0	0	,,	,,	,,
One Side and two Ends	15	0	0	,,	,,	,,
Two Sides and one End	15	0	0	,,	,,	,,
Splays, Chamferred, Squints	14	0	0	,,	,,	,,
Second Quality White and Dipped Salt Glazed	2	0	0			less than best.

	s.	d.	
Thames and Pit Sand.....	7	0	per yard, delivered.
Thames Ballast.....	6	0	,, ,,
Best Portland Cement	29	0	per ton, ,,
Best Ground Blue Lias Lime	20	0	,, ,,

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime.....12s. 0d. per yard, delivered.
Stourbridge Fireclay in sacks 27s. 6d. per ton at rly. dpt.

STONE.

BATH STONE—delivered on road waggons, Paddington Depôt	s. 1	d. 6½	per ft. cube.
Do. do. delivered on road waggons, Nine Elms Depôt	1	8¼	,, ,,
PORTLAND STONE (20 ft. average)— Brown Whitbed, delivered on road waggons, Paddington depôt, Nine Elms depôt, or Pimlico Wharf...	2	1	,, ,,
White Basebed, delivered on road waggons, Paddington depôt, Nine Elms depôt, or Pimlico Wharf...	2	2½	,, ,,

	s.	d.	
Ancaster in blocks	1	11	per ft. cube, deld. rly. depôt.
Beer ,, ...	1	6	,, ,,
Greenshill ,, ...	1	10	,, ,,
Darley Dale in blocks...	2	4	,, ,,
Red Corsehill ,,	2	5	,, ,,
CloseburnRedFreestone	2	0	,, ,,
Red Mansfield ,,	2	4	,, ,,

YORK STONE—*Robin Hood Quality.*

Scappled random blocks	2	10	,,	,,
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2	3	per ft. super.	
6 in. rubbed two sides ditto, ditto	2	6	,,	,,
3 in. sawn two sides slabs (random sizes)	0	11½	,,	,,
2 in. to 2½ in. sawn one side slabs (random sizes)	0	7½	,,	,,
1½ in. to 2 in. ditto, ditto	0	6	,,	,,

HARD YORK—

Scappled random blocks	3	0	per ft. cube,
6 in. sawn two sides, landings to sizes (under 40 ft. super.)	2	8	per ft. super.
6 in. rubbed two sides ditto	3	0	,, ,,
3 in. sawn two sides (slabs random sizes)	1	2	,, ,,
2 in. self-faced random flags	0	5	,, ,,

STONE (*continued*).

HARD YORK (*continued*)—	s.	d.	
Hopton Wood (Hard Bed) in blocks	2	3	per ft. cube. deld. rly. depôt.
,, ,, ,, 6 in. sawn both sides landings	2	7	per ft. super. deld. rly. depôt.
,, ,, ,, 3 in. do.	1	2½	,, ,,

SLATES.

in.	in.	£	s.	d.		
20 × 10	best blue Bangor	13	2	6	per 1000 of 1200	at r. d
20 × 12	,, ,,	13	17	6	,,	,,
20 × 10	first quality ,,	13	0	0	,,	,,
20 × 12	,, ,, ,,	13	15	0	,,	,,
16 × 8	,, ,, ,,	7	5	0	,,	,,
20 × 10	best blue Portmadoc	12	12	6	,,	,,
16 × 8	,, ,,	6	12	6	,,	,,
20 × 10	best Eureka unfading green .	15	17	6	,,	,,
20 × 12	,, ,,	18	7	6	,,	,,
18 × 10	,, ,,	13	5	0	,,	,,
16 × 8	,, ,,	10	5	0	,,	,,
20 × 10	permanent green	11	12	6	,,	,,
18 × 10	,, ,,	9	12	6	,,	,,
16 × 8	,, ,,	6	12	6	,,	,,

TILES.

	s.	d.	
Best plain red roofing tiles .	42	0	per 1000 at rly. depôt.
Hip and Valley tiles ...	3	7	per doz. ,, ,,
Best Brosely tiles.....	50	0	per 1000 ,, ,,
Do. Ornamental tiles	52	6	,, ,, ,,
Hip and Valley tiles ...	4	0	per doz. ,, ,,
Best Ruabon red, brown, or brindled do. (Edwards)	57	6	per 1000 ,, ,,
Do. Ornamental do	60	0	,, ,, ,,
Hip tiles	4	0	per doz. ,, ,,
Valley tiles	3	0	,, ,, ,,
Best Red or Mottled Staffordshire do. (Peakes).....	51	9	per 1000 ,, ,,
Do. Ornamental do.....	54	6	,, ,, ,,
Hip tiles	4	1	per doz. ,, ,,
Valley tiles	3	8	,, ,, ,,
Best "Rosemary" brand plain tiles.....	48	0	per 1000 ,, ,,
Best Ornamental tiles	50	0	,, ,, ,,
Hip tiles	4	0	per doz. ,, ,,
Valley tiles	3	8	,, ,, ,,
Best "Hartshill" brand plain tiles, sand faced.	50	0	per 1000 ,, ,,
Do. pressed.....	47	6	,, ,, ,,
Do. Ornamental do	50	0	,, ,, ,,
Hip tiles	4	0	per doz. ,, ,,
Valley tiles	3	6	,, ,, ,,

WOOD.

	At per standard. £	s.	d.	£	s.	d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in	15	10	0	16	10	0
Deals: best 3 by 4.....	14	10	0	15	10	0
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.	11	10	0	12	10	0
Battens: best 2½ by 6 and 3 by 6 ..	0	10	0	less than 7 in. and 8 in.		
Deals: seconds	1	0	0	less than best		
Battens: seconds	0	10	0	,, ,,	,,	
2 in. by 4 in. and 2 in. by 6 in....	9	0	0	9	10	0
2 in. by 4½ in. and 2 in. by 5 in....	8	10	0	9	10	0
Foreign Sawn Boards— 1 in. and 1¼ in. by 7 in.	0	10	0	more than battens.		
¾ in.	1	0	0	,,		

	At per load of 50 ft.					
Fir timber: best middling Danzig or Memel (average specification)	4	10	0	5	0	0
Seconds	4	5	0	4	10	0
Small timber (8 in. to 10 in.) ...	3	12	6	3	15	0
Small timber (6 in. to 8 in.)	3	0	0	3	10	0
Swedish balks	2	15	0	3	0	0
Pitch-pine timber (30 ft. average)	3	5	0	3	15	0

JOINERS' WOOD.	At per standard.					
White Sea: first yellow deals, 3 in. by 11 in	23	0	0	24	0	0
3 in. by 9 in.	21	0	0	22	10	0
Battens, 2½ in. and 3 in. by 7 in.	17	0	0	18	10	0
Second yellow deals, 3 in by 11 in.....	18	10	0	20	0	0
,, ,, 3 in. by 9 in.	17	10	0	19	0	0
Battens, 2½ in. and 3 in. by 7 in.	13	10	0	14	10	0
Third yellow deals, 3 in. by 11 in. and 9 in.	15	10	0	16	10	0
Battens, 2½ in. and 3 in. by 7 in.	11	10	0	12	10	0
Petersburg: first yellow deals, 3 in. by 11 in.	21	0	0	22	10	0
Do. 3 in. by 9 in.....	18	0	0	19	10	0
Battens.....	13	10	0	15	0	0
Second yellow deals, 3 in. by 11 in.	16	0	0	17	0	0
Do. 3 in. by 9 in.....	14	10	0	16	0	0
Battens.....	11	0	0	12	10	0
Third yellow deals, 3 in. by 11 in.	13	10	0	14	0	0
Do. 3 in. by 9 in.....	13	0	0	14	0	0
Battens.....	10	0	0	11	0	0
White Sea and Petersburg :— First white deals, 3 in. by 11 in.	14	10	0	15	10	0
,, ,, 3 in. by 9 in.	13	10	0	14	10	0
Battens	11	0	0	12	0	0
Second white deals, 3 in. by 11 in.	13	10	0	14	10	0
,, ,, 3 in. by 9 in.	12	10	0	13	10	0
,, ,, battens	9	10	0	10	10	0
Pitch-pine: deals.....	16	10	0	20	0	0
Under 2 in. thick extra	0	10	0	1	0	0
Yellow Pine—First, regular sizes	40	0	0	upwards.		
Oddments	28	0	0	,,		
Seconds, regular sizes.....	30	0	0	,,		
Yellow Pine oddments	25	0	0	,,		
Kauri Pine—Planks, per ft. cube .	0	3	6	0	5	0
Danzig and Stettin Oak Logs— Large, per ft. cube	0	2	6	0	3	6
Small ,, ,, ...	0	2	3	0	2	6
Wainscot Oak Logs, per ft. cube.	0	5	0	0	5	6
Dry Wainscot Oak, per ft. sup. as inch	0	0	8	0	0	9
¾ in. do. do.	0	0	7			

WOOD (*continued*).

JOINERS' WOOD (*continued*)—	At per standard. £ s. d.	£ s. d.
Dry Mahogany—Honduras, Tabasco, per ft. super. as inch ...	0 0 9	0 1 0
Selected, Figury, per ft. sup. as inch ...	0 1 6	0 2 6
Dry Walnut, American, per ft. sup. as inch ...	0 0 10	0 1 0
Teak, per load ...	17 0 0	21 0 0
American Whitewood Planks, per ft. cube ...	0 4 0	—
Prepared Flooring—	Per square.	
1 in. by 7 in. yellow, planed and shot ...	0 13 6	0 17 6
1 in. by 7 in. yellow, planed and matched ...	0 14 0	0 18 0
1¼ in. by 7 in. yellow, planed and matched ...	0 16 0	1 0 0
1 in. by 7 in. white, planed and shot ...	0 12 0	0 14 6
1 in. by 7 in. white, planed and matched ...	0 12 6	0 15 0
1¼ in. by 7 in. white, planed and matched ...	0 15 0	0 16 6
¾ in. by 7 in. yellow, matched and beaded or V-jointed brds.	0 11 0	0 13 6
1 in. by 7 in. do. do.	0 14 0	0 18 0
¾ in. by 7 in. white do. do.	0 10 0	0 11 6
1 in. by 7 in. do. do. do.	0 11 6	0 13 6

6 in. at 6d. to 9d. per square less than 7 in.

JOISTS, GIRDERS, &c.

	In London, or delivered Railway Vans, per ton. £ s. d.	£ s. d.
Rolled Steel Joists, ordinary sections ...	5 15 0 ...	6 15 0
Compound Girders, ordinary sections ...	7 12 6 ...	8 15 0
Angles, Tees and Channels, ordinary sections ...	7 7 6 ...	8 7 6
Flitch Plates ...	7 15 0 ...	8 5 0
Cast Iron Columns and Stanchions including ordinary patterns ...	6 12 6 ...	7 15 0

METALS.

IRON—	Per ton, in London £ s. d.	£ s. d.
Common Bars ...	6 15 0 ...	7 5
Staffordshire Crown Bars, good merchant quality ...	7 5 0 ...	7 15 0
Staffordshire "Marked Bars"	9 10 0 ...	—
Mild Steel Bars ...	8 5 0 ...	8 15 0
Hoop Iron, basis price ...	8 15 0 ...	9 0 0
" " Galvanized ...	16 10 0 ...	—

(*And upwards, according to size and gauge.)

Sheet Iron, Black—		
Ordinary sizes to 20 g. ...	9 0 0 ...	—
" " 24 g. ...	10 0 0 ...	—
" " 26 g. ...	11 15 0 ...	—
Sheet Iron, Galvanised, flat, ordinary quality—		
Ordinary sizes—6 ft. by 2 ft. to 3 ft. to 20 g. ...	12 0 0 ...	—
Ordinary sizes to 22 g. and 24 g.	12 10 0 ...	—
" " 26 g. ...	13 10 0 ...	—
Sheet Iron, Galvanised, flat, best quality—		
Ordinary sizes to 20 g. ...	15 0 0 ...	—
" " 22 g. and 24 g.	15 10 0 ...	—
" " 26 g. ...	17 0 0 ...	—
Galvanised Corrugated Sheets—		
Ordinary sizes 6 ft. to 8 ft. 20 g.	12 0 0 ...	—
" " 22 g. and 24 g.	12 10 0 ...	—
" " 26 g. ...	13 5 0 ...	—
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. by 20 g. and thicker	11 0 0 ...	—
Best Soft Steel Sheets, 22 g. & 24 g.	12 0 0 ...	—
" 26 g. ...	13 5 0 ...	—
Cut nails, 3 in. to 6 in. ...	8 10 0 ...	9 0 0

(Under 3 in., usual trade extras.)

LEAD, &c.

	Per ton, in London. £ s. d.	£ s. d.
LEAD—Sheet, English, 3lb. and up	15 12 6 ...	—
Pipe in coils ...	16 2 6 ...	—
Soil pipe ...	18 12 6 ...	—
Compo pipe ...	18 12 6 ...	—
ZINC—Sheet—		
Vieille Montagne ...ton	29 5 0 ...	—
Silesian ...	29 0 0 ...	—
COPPER—		
Strong Sheet ...per lb.	0 0 10 ...	—
Thin " ... "	0 0 11 ...	—
Copper nails ... "	0 0 10 ...	—
BRASS—		
Strong Sheet ... "	0 0 9½ ...	—
Thin " ... "	0 0 10 ...	—
TIN—English Ingots ... "	0 1 3½ ...	—
SOLDER—Plumbers' ... "	0 0 6½ ...	—
Tinmen's ... "	0 0 8 ...	—
Blowpipe ... "	0 0 9 ...	—

ENGLISH SHEET GLASS IN CRATES.

15 oz. thirds ...	2¾d. per ft. delivered.
" fourths ...	2d. " "
21 oz. thirds ...	3¾d. " "
" fourths ...	3d. " "
26 oz. thirds ...	4¾d. " "
" fourths ...	3¾d. " "
32 oz. thirds ...	5¾d. " "
" fourths ...	5d. " "
Fluted Sheet, 15 oz ...	3¾d. " "
" 21 oz ...	4¼d. " "
¼ Hartley's Rolled Plate ...	2d. " "
⅜ " " " ...	2¼d. " "
½ " " " ...	2½d. " "

OILS, &c.

		£ s. d.
Raw Linseed Oil in pipes ...	per gallon	0 1 5
" " " in barrels ...	"	0 1 6
" " " in drums ...	"	0 1 8
Boiled " " in pipes ...	"	0 1 7
" " " in barrels ...	"	0 1 8
" " " in drums ...	"	0 1 10
Turpentine, in barrels ...	"	0 3 4
" in drums ...	"	0 3 6
Genuine Ground English White Lead	per ton	19 15 0
Red Lead, Dry ...	"	18 15 0
Best Linseed Oil Putty ...	per cwt.	0 6 6
Stockholm Tar ...	per barrel	1 12 0

VARNISHES, &c.

	Per gallon. £ s. d.
Fine Pale Oak Varnish ...	0 8 0
Pale Copal Oak ...	0 10 6
Superfine Pale Elastic Oak ...	0 12 6
Fine Extra Hard Church Oak ...	0 10 0
Superfine Hard-drying Oak, for seats of Churches ...	0 14 0
Fine Elastic Carriage ...	0 12 6
Superfine Pale Elastic Carriage ...	0 16 0
Fine Pale Maple ...	0 16 0
Finest Pale Durable Copal ...	0 18 0
Extra Pale French Oil ...	1 1 0
Eggshell Flatting Varnish ...	0 18 0
White Copal Enamel ...	1 4 0
Extra Pale Paper ...	0 12 0
Best Japan Gold Size ...	0 10 6
Best Black Japan ...	0 16 0
Oak and Mahogany Stain ...	0 9 0
Brunswick Black ...	0 8 6
Berlin Black ...	0 16 0
Knotting ...	0 10 0
French and Brush Polish ...	0 10 0

TO CORRESPONDENTS.

NOTE.—The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications; and the Editor cannot be responsible for drawings, photographs, manuscripts, or other documents, or for models or samples, sent to or left at this office, unless he has specially asked for them.

Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

All communications must be authenticated by the name and address of the sender, whether for publication or not. No notice can be taken of anonymous communications.

We are compelled to decline pointing out books and giving addresses.

Any commission to a contributor to write an article, or to execute or lend a drawing for publication, is given subject to the approval of the article or drawing, when received, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and *not* to the Editor.

TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays.* [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is stated, nor any list in which the lowest Tender is under 100*l.*, unless in some exceptional cases and for special reasons.]

* Denotes *accepted.* † Denotes *provisionally accepted.*

AMBLE.—For making-up back lanes with whin chip paving, for the Urban District Council. Mr. W. Gibson, Surveyor, 94, Queen-street, Amble :—

	Per yd. super.
R. Carse & Son ...	4 2
A. Douglas ...	4 0
E. Coulson, Amble* ...	3 6

[Surveyor's estimate, 3s. 6d. per yd.]

BIRMINGHAM.—For erecting a chapel at the Cottage Homes, Marston Green, for the Guardians. Messrs. C. Whitwell & Son, architects, 23, Temple-row, Birmingham :—

J. Atkinson	£2,805 0 0	Cole & Son	£2,550 0 0
Dallow & Son	2,795 0 0	H. Taylor	2,530 5 6
G. Twigg	2,705 0 0	H. Gregory	2,496 2 6
Smith & Sons	2,686 0 0	A. J. Pitts	2,489 0 0
Fenwick & Co.	2,643 10 0	C. Hope	2,437 0 0
W. H. Gibbs	2,635 0 0	J. Turton, Wheeleys-road, Birmingham*	2,407 0 0
G. Mobbs	2,608 0 0		
E. Chatwin	2,591 10 0		
C. Hughes	2,590 0 0		

BRASTED.—For 980 yds. of 9 in. stoneware pipe sewer in Chart-lane, for the Sevenoaks Rural District Council. Mr. T. Hennell, engineer, Parliament-mansions, Victoria-street, London, S.W. :—

A. C. Soan	£555 17 6	R. Durtnell & Sons	£337 0 0
E. Iles, jun.	371 10 0	K. Canfield, Sundridge, Sevenoaks*	289 19 0
W. Arnold & Sons	352 0 0		

BRIMPTON.—For erecting a steel bridge, 84 ft. by 15 ft., at Brimpton, near Newbury, for the Berkshire County Council. Mr. J. Morris, County Surveyor, Broadway-buildings, Reading. Quantities by Mr. Morris :—

A. Findlay	£2,440 11 5	J. Coulson, Stokes, & Co.	£1,301 14 3
R. Moreland & Son	1,870 0 0	W. A. Baker & Co.	1,300 0 0
Cleveland Bridge Co.	1,668 13 11	A. J Ellis	1,275 5 0
A. D. Dawnay	1,589 16 8	J. Westwood	1,267 18 9
A. Thorne	1,587 0 0	G. Thompson & Co.	1,250 0 0
Fulham Steel Works	1,575 0 0	T. James	1,236 0 0
E. C. & J. Keay	1,493 0 0	J. O. Brettell	1,170 3 4
G. H. Tucker	1,349 0 0	Needham & Lowe	1,150 0 0
M. E. Fitt	1,338 0 0	C. W. Cox & Sons, Maidenhead*	1,109 0 0
E. Finch & Co., Ltd.	1,333 17 2		
Woods & Moir	1,307 0 0		

CLAVERTON.—For reinstatement of roof, north transept, Claverton Church, Somerset. Mr. E. S. Payton, architect and surveyor, 3, Wood-street, Bath :—

Carpenter: W. Webb, Bath ... } Under a priced
Stone Tiler: C. Mannings, Bath ... } schedule.

DARTFORD.—For making-up Fulwich-street, for the Urban District Council. Mr. T. E. Tiffin, Surveyor, Council Offices, Dartford. Quantities by Surveyor:—

G. Rackham	£3,204	W. H. Wheeler	£2,241
Parsons & Parsons	2,735	S. J. Brice & Sons, Rochester*	2,160
Road Maintenance & Stone Supply Co., Ltd.	2,413		

DEDHAM.—For alterations and additions to Dedham National Schools, Essex. Mr. F. Whitmore, architect:—

J. McKay	£498	Capon	£363
Parsons & Sons	430	Saunders & Sons, Dedham*	340
G.E. Joinery Co.	389	Diss	315
Lord	385		

DOVER.—For surface water drains in Cherry Tree-avenue and Bridge-street, for the Town Council. Mr. H. E. Stilgoe, Borough Engineer, Maison Dieu House, Dover :—

O. G. Osenton	£715 0 0	G. Lewis & Sons	£611 10 0
W. H. Grigg	641 0 0	S. Lewis	605 17 0
G. Munro	632 16 4	E. T. Jeffery	594 0 0
G. D. J. Keeler	628 0 0	E. Stokes	567 0 0
W. Wilson	621 8 0		

GUILDFORD.—For 1,050 lineal yds. of 2-in. cast-iron water main, etc., in the parish of St. Martha, for the Hambledon Rural District Council. Mr. E. L. Lunn, surveyor, 36, High-street, Guildford :—

A. & A. Streeters, Farncombe, Godalming £116 13

HADDISCOE HALL (Norfolk).—For internal and external renovations, repairs, and alterations, &c., for Mr. E. Morse. Mr. Arthur Pells, architect, Beccles:—

A. C. Taylor	£1,184	G. Elsey	£900
Youngs & Son	1,128	A. D. Boswright	895
Boddy & Son	1,059	A. G. Beckett, Lowestoft*	773
J. E. Pestell	984	J. J. Howes	665
J. Atherton	977		
C. R. Cole	973		

HORSFORTH.—For erecting a store, Woodside, for the Leeds Industrial Co-operative Society, Ltd. Mr. J. Smith, architect, Leeds Industrial Co-operative Society's Building Department, Leeds. Quantities by Mr. Smith :—

Masons' Brickwork, Excavator, and Drainage:
T. Throup & Sons, Horsforth ... £477 0 0
Plumber and Glazier: M. Lawson, Horsforth 64 8 6
Slater: Scholey Bros., Leeds ... 30 0 0
Plasterer: Dickenson & Sons, Horsforth ... 13 5 0
Steel Girders, etc.: Leeds Steel Works, Ltd., Leeds ... —

[Carpenters, joiners and painters' work to be done by the Society's own Building Department.]

LEICESTER.—For painting, etc., exterior of museum, mayor's rooms, art gallery, lodge, etc., for the Museum and Art Gallery Committee. Mr. E. G. Mawbey, Borough Engineer and Surveyor, Town Hall, Leicester:—

A. H. Lee	£293 14 1	E. Bunney	£210 6 7
E. Winterton & Son	283 11 4	A. Brown	209 10 6
J. Norton	250 0 0	J. A. Jarvis	208 0 0
Ellingworth & Co.	238 11 2	Porter & Robinson	181 0 0
J. Knight	234 9 9	W. Bradshaw	170 0 0
W. A. Banton	223 2 11	J. A. Tyler, Erskine-st., Leicester*	166 4 8
Cox & Massey	213 4 0		

LEICESTER.—For the construction of 2,882 yds. of brick and pipe sewers, for the Highway and Sewerage Committee. Mr. E. G. Mawbey, Borough Engineer and Surveyor, Town Hall, Leicester :—

J. W. Dean Leicester Builders, Ltd.	£14,479 16 6	Loch, Andrews, & Price	£6,457 3 0
C. Chamberlain	7,911 0 0	Johnson & Langley	6,410 16 4
Bentley & Loch	6,703 12 6	Langley & Co.	6,380 10 8
J. S. Dawson	6,533 7 6	Philbrick Bros.	6,228 1 11
		Smedley & Booth	5,957 8 0

LONDON.—For pulling down certain old buildings at the Infirmary, and forming substructure for the new administrative block, for the Hackney Union :—

J. C. Base	£9,000	H. Lovatt, Ltd.	£6,380
J. Appleby & Sons	8,118	W. Wallace & Co., Ltd.	6,350
Ferguson & Co.	7,366	W. Lawrence & Son	6,347
Schooley & Son	7,291	Kilby & Gayford	6,225
F. & E. Davey, Ltd.	7,200	Stimpson & Co.	6,150
Barrett & Power	7,163	Perry & Co.	5,999
W. Wallace	6,995	W. Johnson & Co., Ltd.	5,715
Kirk & Randall	6,967	F. & T. Thorne	5,597
Shurmur & Sons	6,948	J. Shelbourne & Co.	5,589
Patman & Fotheringham, Ltd.	6,800	C. Wall, Ltd.	5,535
F. W. Harris & Co., Ltd.	6,718	Stapleton & Sons, 112, High-street, Stoke Newington, N.†	5,476
H. Wilcock & Co.	6,700	Kerridge & Shaw	5,395
J. Chessam & Sons	6,550		
Leslie & Co., Ltd.	6,445		
N. Fortescue & Son, Ltd.	6,397		

LONDON.—For the manufacture, supply, delivery, and erection of six penstocks, each 8 ft. 3 in. in diameter, together with all lifting gear and accessories, to be constructed near Plumstead railway station in connexion with the new southern outfall sewer No. 2, and the new southern high level sewer No. 2, for the London County Council :—

R. Moreland & Son	£3,240	Glenfield & Kennedy	£2,350
Hunter & English	3,198	J. Blakeborough & Sons, Brighouse, Yorks.*	2,147
Ashton, Frost, & Co.	2,575		
J. Cochrane	2,540		
Yates & Thom	2,460		

TENDERS.—*Continued on page* 563.

COMPETITIONS, CONTRACTS, AND PUBLIC APPOINTMENTS.

(For some Contracts, &c., still open, but not included in this List, see previous issues.)

COMPETITIONS.

Nature of Work.	By whom Required.	Premiums.	Designs to be Delivered
Library Buildings, Links-place, Burntisland	Burntisland Town Council	..... Names by	Dec. 1
*Proposed Northumberland War Memorial	Committee	Not stated	No date.

CONTRACTS.

Nature of Work or Materials.	By whom Advertised.	Forms of Tenders, etc., supplied by	Tenders to be Delivered
Stores	Swansea Harbour Trust	Engineer at Harbour Office	Nov. 26
Paving with Granite Setts Tramway Margins	Devonport Town Council	J. F. Burns, Borough Surveyor, Municipal Offices, Devonport ..	do.
Constable's House at Taynuilt	Argyle County Council	G. W. Brenan, C.E., Albany-street, Oban	do.
Alters., etc., Council Schl., Waverley-rd., Small Heath	Birmingham Education Committee	A. Rowse, Surveyor, 117, Colmore-row, Birmingham	do.
Enlarge. of Council School, Jenkins-st., Small Heath	do.	do.	do.
Tools, Navvy Barrows, etc.	Leith Town Council	Burgh Surveyor's Office, Charlotte-street, Leith	do.
Counter & Showcase, Dewsbury-rd. Branch Library	Leeds Corporation	City Engineer's Office	Nov. 28
Skating Pond, Rothes	.....	A. Robb, Burgh Surveyor, Rothes	do.
Stores	Bombay, etc., Central India Ry. Co.	T. W. Wood, Sec., Gloucester Hse., Bishopsgate-st. Without, E.C.	do.
Scavenging	Ashton-upon-Mersey U.D.C.	J. O. Barrow, Council Offices, Barker's-lane, Ashton-upon-Mersey	do.
520 yds. of 9-in. Stoneware Pipe Sewers, Sydney-rd.	Walton-on-Thames U.D.C.	R. Wilds, Engineer, Council Offices, Walton-on-Thames	do.
Street Work, Swindon	The Corporation	H. J. Hamp, Borough Surveyor, Town Hall, Swindon	do.
Road Works, St. Ives-road	Maidenhead Town Council	P. Johns, Borough Surveyor, Guildhall, Maidenhead	do.
Scavenging, Houghton Regis	Luton R.D.C.	W. Austin, 7, George-street West, Luton	do.
Sewerage Work, Rathdrum, Ireland	R.D.C.	G. T. Moore, C.E., 1 and 2, Foster-place, College-green, Dublin..	do.
Elementary School near East-street	Eastbourne Corporation	F. G. Cooke, 2, Hyde-gardens, Eastbourne	do.
Repairs to Leuchars School	.....	J. Wittet, Architect, Elgin	do.
Road Metal	Elgin Highways Committee	A. Hogg, Surveyor, 24, Academy-street, Elgin	do.
Painting, etc., at Dispensary, 13, North-st., Plym'th	Guardians	W. Adams, 13, Princess-square, Plymouth	Nov. 29
Road Works, Waterloo, etc. (Contract 1)	Waterloo with Seaforth U.D.C.	F. Spencer Yates, Surveyor, Town Hall, Waterloo, Liverpool	do.
Road Works, Waterloo, etc. (Contract 2)	do.	do.	do.
Tramway, Old-street, etc.	Ashton-under-Lyne Tramways Com.	J. T. Earnshaw, Boro. Surveyor, Town Hall, Ashton-under-Lyne	do.
Electric Lighting of Old Nurses' Home, Withington	Chorlton Guardians	G. R. Peers, A.M.I.E.E., 16, John Dalton-street, Manchester....	do.
Twenty-eight Dwelling Houses, New Main-road	Aberbargoed Estates, Ltd.	G. Kenshole, Architect, Bargoed	do.
Shop and Dwelling House, New Main-road	do.	do.	do.
Painting, etc., of Hunslet Baths	Leeds Corporation	City Engineer's Office	do.
Public Library, Brynmaur	Free Library Committee	F. R. Bates, Architect, Westgate-chambers, Newport	do.
Deck Bridges	Southern Mahratta Railway Co. ..	Secretary, 46, Queen Anne's-gate, S.W.	do.
Steel Rails and Fish Plates	do.	do.	do.
Wrought-Iron Dog Spikes	do.	do.	do.
Steel Sleepers and Keys	do.	do.	do.
Cowshed, Dairy, etc., Bradley, near Bilston	S. Staffordshire Smallpox Hosp. Bd.	G. Green, Engineer, Town Hall, Wolverhampton	do.
Laying out Ground, etc.	do.	do.	do
Repairs to Wesleyan Chapel, Flamborough	The Trustees	S. Dyer, Architect, 29, Quay-road, Bridlington	do.
Council School, Southwater, Sussex	West Sussex County Council	F. Wheeler, F.R.I.B.A., Bank-chambers, Carfax, Horsham	do.
Mortuary at Infectious Diseases Hospital, Bucknall	Hanley, etc., Hospital Board	Elijah Jones, Architect, 10, Albion-street, Hanley	Nov. 30
Water Storage Tank	do.	do.	do.
Steam Pump	do.	do.	do.
Cast-Iron Pipes, Special Castings, etc.	Birmingham Water Committee	E. Antony Lees, Secretary, 44, Broad-street, Birmingham	do.
Repairs, etc., Fellscliffe Provided School	West Riding County Council	Education Committee Offices	do.
Steel Boiler Plates, etc.	East India Railway Co.	C. W. Young, Secretary, Nicholas-lane, London, E.C.	do.
Paints, etc.	do.	do.	do.
Wrought-Iron Piping	do.	do.	do.
175 yds. of Unclimbable Iron Fencing	Farnham Guardians	Master of Workhouse	do.
Making-up Roads, Little Thurrock, Essex	Orsett R.D.C.	F. Lowry, A.M.I.C.E., Hornchurch	do.
*Alterations, etc., Grand Aquarium and Winter Gdns.	Brighton Borough Council	W. C. F. Gillam, Arch., Central-chbrs., 3, North-st.-quad., Brighton	Dec. 1
*Gunmetal Ingots	Burma Railways Co., Ltd.	A. G. Begbie, 76, Gresham House, Old Broad-street, E.C.	do.
Beater Picks and Phowrahs	do.	do.	do.
Copper Ingots	do.	do.	do.
Making-up Havelock-road	Gravesend Town Council	Borough Surveyor's Office, Town Hall, Gravesend	do.
Broken Granite, Gravel, and Shingle	Ruislip-Northwood U.D.C.	E. R. Abbott, Clerk, Northwood, R.S.O., Middlesex	do.
200 Socket and Spigot Pipes (3-inch)	Salford Water Committee	L. C. Evans, Town Clerk, Town Hall, Salford	do.
300 Socket and Spigot Pipes (4-inch)	do.	do.	do.
Hacken Sewage Works Extension (Contract No. 1)..	Bolton Corporation	E. L. Morgan, Borough Engineer, Town Hall, Bolton	Dec. 2
Scavenging for Nettleham	Welton R.D.C.	Mr. Gilbert, Inspector of Nuisances, Welton-by-Lincoln	do.
Stores	Messrs. Burns	30, Jamaica-street, Glasgow	do.
Hacken Sewage Works Extension	Bolton Corporation	E. L. Morgan, Borough Engineer, Town Hall, Bolton	do.
Rebuilding, etc., of Estholme Bridge, near Aysgarth	North Riding County Council	W. G. Bryning, County Surveyor, Northallerton	do.
Rebuilding Widdale Head Bridge, near Hawes	do.	do.	do.
*New House at Greenock	Admiralty	Director of Works Depart., 21, Northumberland-avenue, W.C.	do.
Public Conveniences, George's-square, Halifax	Improvements Committee	J. Lord, Borough Engineer, Town Hall, Halifax	Dec. 3
Stores	North-Eastern Railway Co.	E. H. Clark, Stores, Gateshead	do.
Telegraph Stores	do.	C. H. Ellison, Telegraph Superintendent, York	do.
School, Romsey Town, Cambridge	Town Council	Goodey & Cressall, Architects, Victoria-chambers, Colchester	do.
Five Tip-Wagons	Teddington U.D.C	M. Hainsworth, Surveyor, Public Offices, Teddington	do.
Sanitary Fittings for Public Conveniences	Glasgow Corporation	Office of Public Works, 64, Cochrane-street, Glasgow	do.
Lavatory in Duke-street, at Cattle Market	do.	do.	do.
Store at Free Wharf, Shoreham	Harbour Trustees	Harbour Master's Office	do.
Drainage of Bouth, Ulverston	Ulverston R.D.C.	Engineer, Council Office, Ulverston	do.
Lossiemouth Waterworks	Town Council	J. H. Glennie, Town Clerk, Lossiemouth	Dec. 5
School	Hereford Education Committee	E. Noel Barker, Architect, 146, St. Owen-street, Hereford	do.
Welwyn Sewage Disposal (Contract No. 1)	Welwyn R.D.C.	H. Walker & Son, Engineers, Albion-chbrs., King-st., Nottingham	do.
Steps at Trinity-street to Anchor-road	Bristol New Streets Committee	T. H. Yabbicom, City Engineer, 63, Queen-square, Bristol	do.
Surface Water Drain, etc., Lancing	Steyning West R.D.C.	F. Slaughter, Engineer and Surveyor, High-street, Steyning	do.
Dredging at Troon Harbour	Glasgow and South-Western Ry. Co.	Engineer to Company, St. Enoch Station, Glasgow	do.
Stores	Dublin United Tramways Co.	Secretary, 9, Upper Sackville-street, Dublin	do.
Retain. Walls, etc., Worsley Brow, etc., Road-widening	Worsley U.D.C.	J. A. Corson, Engineer and Surveyor, District Offices, Walkden	do.
Painting, etc., Byker Baths, etc., Shipley-street	Newcastle-on-Tyne Finance Com...	City Property Surveyor's Office, Town Hall, Newcastle-on-Tyne	do.
Three Main-Driving Gas Engines, York-rd., Battersea	London C.C.	M. Fitzmaurice, Engineer, County Hall, Spring-gardens, S.W. ..	Dec. 6
Various Works	Corporation of London	Engineer, Public Health Department, Guildhall, E.C.	do.
Road Works, Main Roads	Woodford U.D.C.	W. Farrington, Surveyor, Council Offices, Woodford-green	do.
Road Works, other Roads in District	do.	do.	do.
*Supply of Broken Granite	Brentford U.D.C.	Council's Surveyor, Boston-road, Brentford	do.
*Carprs.', Plumbers', Paitrs.', Smiths', Engrs'., Job. Wk.	Corporation of London	Engineer, Public Health Department, Guildhall, E.C.	do.
*Sinking Well and Borehole, etc., at New Baths	Tottenham U.D.C.	Council's Clerk, Council's Offices, 712, High-road, Tottenham, N.	do.
Paving Setts	Dublin Port and Docks Board	Secretary, Port and Docks Office, Westmoreland-street, Dublin..	Dec. 7
Cordage	do.	N. Proud, Port and Docks Office, Westmoreland-street, Dublin..	do.
Reflooring at Workhouse, Strood	Guardians	G. E. Bond, Architect, Pier-chambers, Chatham	do.
950 yds. of Ornamental Railing	Blackpool Highway Committee....	J. S. Brodie, Borough Engineer, Town Hall, Blackpool	do.
1,310 yds. of Brick	Birmingham Public Works Com. ..	J. Price, City Engineer, Council House, Birmingham	do.
800 yds. of Pipe Storm-water Sewers, etc.	do.	do.	do.
Scavenging, Wouldham	Malling R.D.C.	C. Souter, Inspector of Nuisances, West Malling	do.
Hurlford, etc., Waterworks	Kilmarnock District Committee ..	J. Sturrock, jun., Engineer, 65, King-street, Kilmarnock	do.
*Plant for Manufacture of Artificial Paving	Manchester Corporation	City Surveyor, Town Hall, Manchester	do.
*Making-up Wood Lawn-road (Section II.)	Borough of Fulham	Borough Surveyor, Town Hall, Fulham, S.W.	do.
Public Offices, Commercial-road, near Station	Woking U.D.C.	G. J. Wooldridge, Arch. and Surv., Bank Chambers, Woking	Dec. 8
Stores	Chatham Corporation	C. Day, Borough Surveyor, Town Hall, Chatham	do.
Alterations to No. 17, South-street, Dorchester	Mr. W. H. C. Thurman	F. Maltby, Architect and Surveyor, South-street, Dorchester	do.
*Making-up Roads, etc.	Ealing Town Council	Borough Engineer, Town Hall, Ealing, W.	do.
*Enlargement of Eastern District Post Office, London	Commissioners of H.M. Works, etc.	J. Wager, H.M. Office of Works, Storey's-gate, S.W.	do.

CONTRACTS.—*Continued.*

Nature of Work or Materials.	By whom Advertised.	Forms of Tender, etc., supplied by	Tenders to be Delivered.
Iron Steam Buoy Vessel	Commissioners of Port of Rangoon	O. Gillanders & Co., Sun-court, 67, Cornhill, London, E.C.	Dec. 9
*New Schools at Wokingham	Berkshire Education Committee	Edwin C. Pinks, Parliament-mansions, Victoria-street, S.W.	do.
Caretaker's House, Pleasley Schools	Derbyshire Education Committee	J. Perkin, Architect, Shirebrook, near Mansfield	Dec. 10
*Erection of Electrical Traveller	Mr. B. E. Nightingale		do.
Elec. Light (Wiring only) at Infirm., Stepping-hill	Stockport Guardians	W. H. Ward, Architect, Paradise-street, Birmingham	Dec. 12
Telephones and Bells at Infirmary, Stepping-hill	do.	do.	do.
Water Main at Workhouse, Macclesfield	Guardians	Whittaker & Bradburn, 19, King Edward-street, Macclesfield	do.
Station-buildings, Goods Stores, etc., Ballyward	G.N. Railway Co. (Ireland)	W. H. Mills, Engineer, Amiens-street Terminus, Dublin	do.
Station-buildings, Goods Stores, etc., Leitrim	do.	do.	do.
Extension of Engine Shed at Omagh	do.	do.	do.
Cottage, Maguiresbridge	do.	do.	do.
*Wood and Corrugated Iron Fire-escape Shed	U.D.C. of Hendon	Council's Engineer, Council's Office, Hendon	do.
*New Fire Mains, Chimney Shaft, Boiler, etc.	Kent County Lunatic Asylum	W. J. Jennings, Architect, 4, St. Margaret's-street, Canterbury	Dec. 13
*Alterations to Boiler House, New Exit Stairs, etc.	do.	do.	do.
Additions, Monaghan District Lunatic Asylum	Joint Committee	T. F. M'Namara, Architect, 50, Dawson-street, Dublin	Dec. 15
Cast-Iron Water Mains	Cuckfield R.D.C.	D. Rankine Waterworks Engr., Council Offices, Haywards Heath	Dec. 16
*New Coastguard Buildings at Stubbington, Hants	Admiralty	Superintending Engineer, H.M. Dockyard, Portsmouth	do.
School Desks, Cupboards, etc., Manor-road School	Wallasey U.D.C.	T. Samuel, B.A., Central Park, Liscard, Cheshire	Dec. 17
Laboratory Benches, etc.	do.	do.	do.
Headcorn Sewerage (Contract B)	Hollingbourn R.D.C.	Fairbank & Son, C.E., Lendal-chambers, York	Dec. 21
*New Board-room and General Offices	River Wear Commissioners	Henderson & Ball, Architects, 28, John-street, Sunderland	Jan. 4-05
First Section of Theological College, Llandaff		F. R. Kempson, F.R.I.B.A., Hereford	No date
Desks, Furniture, etc., West Jesmond School	Newcastle-on-Tyne Education Com.	A Goddard, Education Offices, Northumberland-road, Newcastle	do.
Pair of Surface Condensing Engines		W. Hill, 44, The Calls, Leeds	do.
Rebuilding Fountain-inn, etc., Abergavenny		E. A. Johnson, F.R.I.B.A., Abergavenny	do.
*Seven Villas, Willenhall Park Estate, New Barnet	London & District Land & Bldg. Co.	Company's Office, 9, Great Castle-street, Oxford-circus, W.	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in
*Assistant Civil Engineers	Civil Service Commission	Not stated	Jan. 5-05

Those marked with an asterisk (*) are advertised in this number. *Competitions*, iv. *Contracts*, iv. vi. viii. x. *Public Appointments*, xix.

TENDERS.—*Continued from page 561.*

LONDON.—For the erection of buildings, etc., in connexion with a housing scheme at Lower Cross-road, for the Borough Council of Hampstead. Mr. Oliver E. Winter, Borough Engineer, Town Hall, Haverstock-hill, N.W.:—

Mattock & Parsons	£14,791 0	Knight & Son	£12,380 0
J. Guttridge	13,988 11	J. & M. Patrick	12,331 0
A. Hudson & Co.	13,905 0	B. E. Nightingale	12,166 0
J. Wells	13,432 0	Appleby & Sons	12,000 0
C. F. Kearney	13,340 0	Davey & Jones	11,997 0
Perry & Co.	12,957 0	Lawrence & Son	11,994 0
C. Wall, Ltd.	12,493 0	E. J. Saunders	11,978 0
Johnson & Co., Ltd.	12,490 0	Cowley & Drake	11,859 0
G. Neal	12,490 0	J. Parsons	11,847 0
G. E. Wallis & Sons, Ltd.	12,473 0	Banyard & Son, Gwydir-st., Cambridge*	11,300 0

LONDON.—For the enlargement of the sorting office at East Croydon, for the Commissioners of H.M. Works and Public Buildings:—

	Amount of tender.	Credit for old materials.
E. P. Bulled & Co.	£2,925 0 0	£66 0 0
Chambers Bros.	3,012 8 4	77 8 4
J. Smith & Sons, Ltd.	3,083 0 0	107 0 0
Cropley Bros., Ltd.	3,037 0 0	40 0 0
W. H. Wagstaff & Sons	3,051 0 0	10 7 0
R. Dean & Co.	3,178 0 0	58 0 0
Myall & Upson	3,186 0 0	26 0 0
Smith & Sons	3,279 0 0	160 0 0
R. B. Amos	3,200 0 0	30 0 0
General Builders, Ltd.	3,211 0 0	25 0 0
Martin, Wells, & Co., Ltd.	3,197 0 0	—
J. Shelbourne & Co.	3,241 0 0	3 0 0
T. Pearce	3,327 0 0	—
C. Horton	3,453 0 0	40 0 0
F. Graham & Co.	3,800 0 0	40 0 0

LONDON.—For an electric light installation at Kensington (King-street) fire station, for the London County Council:—

L. Sunderland & Co.	£215 0	A. H. Marshall & Co., Ltd.	£189 10
National Electric Construction Co., Ltd.	213 0	F. J. Coleby & Co.	189 10
Oliver, Clark, & Co.	205 0	W. H. Johnson	183 15
Durell & Co.	189 13	Donnison, Sillem, & Co., 116, Gt. Portland-street, W.*	176 10

LONDON.—For the erection of kitchen at the Casual Wards, for the Lambeth Guardians. Messrs. Woodward, Brooks, & Latter, surveyors, 69, Kennington-oval, S.E.:—

	£	s.	Time for completion.
A. W. Jaggers & Co.	247	3	8 weeks.
T. G. Sharpington	228	0	8 weeks.
H. King & Son	225	0	8 weeks.
C. R. Price	220	0	8 weeks.
J. J. Richards	202	0	7 weeks (weather permitting).
London and County Builders, Ltd.	199	10	8 weeks.
H. Kent	197	0	5 weeks.
J. F. Holliday	196	0	6 weeks.
Cruse & Baldwin	187	0	10 weeks.
J. Parsons	173	0	Time as arranged.
H. Bragg & Son	167	0	8 weeks.
E. Wall	162	18	8 weeks.
A. Hudson & Co., 30-32, Queen Anne's-chbrs., Westminster*	147	0	8 weeks.

LONDON.—For new out-patients' department, Queen's Jubilee Hospital, West Brompton. Mr. A. Blackford, architect. Quantities by Mr. T. Woodbridge Biggs:—

Holloway Bros.	£2,672	Renshaw	£2,397
Kirk & Randall	2,670	Stimpson & Co.	2,350
Minter & Co.	2,640	Johnson & Co.	2,329
Prestige & Co.	2,491	W. Shurmur & Sons, Ltd.	2,295
Allen & Son	2,450		

LONDON.—For enlargement of Fourth-avenue School, East Ham, for the East Ham Education Committee. Mr. R. L. Curtis, architect, 11 and 12, Finsbury-square, E.C.:—

F. & A. Willmott	£4,037	J. W. Jerram	£3,797
Calnan & Son	4,030	J. Gregory	3,793
Gregar & Son	3,929	W. J. Maddison, Canning Town*	3,416
H. C. Horswill	3,804		
Hammond & Son	3,797		

LONDON.—For Streatham new sorting office, for the Commissioners of H.M. Works and Public Buildings:—

W. D. Hedges & Co., Ltd.	£3,249 15	J. Smith & Sons, Ltd.	£2,640 0
Sansom & Bishop	3,075 0	T. G. Sharpington	2,626 0
T. H. Kingerlee & Sons	2,988 0	J. Parsons	2,577 0
F. & A. Willmott	2,887 0	Hibberd Bros., Ltd.	2,558 0
Martin, Wells, & Co., Ltd.	2,819 0	W. Martin	2,547 0
W. Wallis	2,774 17	J. Shelbourne & Co.	2,519 0
E. P. Butter & Co.	2,693 0	A. Dean & Co.	2,509 12
W. Smith & Sons	2,684 0	C. Horton	2,499 0
H. Leney & Son	2,680 0	B. E. Nightingale	2,490 0
W. H. Lorden & Son	2,678 0	W. Johnson & Co., Ltd.	2,488 0
F. G. Lawrence	2,646 9	Edwards & Medway	2,436 0
Matlock & Parsons	2,643 0	Banyard & Son	2,300 0

LONDON BOARD OF EDUCATION TENDERS.

For cleaning schools during the Christmas holidays, 1904:—

Clapham, Haselrigge-road.

Rice & Son	£292	J. Garrett & Son	£213
C. Gurling	285	E. Triggs	212
H. Leney & Son	262	W. Read, 43, Church-road, Brixton*	187
Lathey Bros.	233		
Maxwell Bros., Ltd.	229		

Greenwich, Old Woolwich-road.

T. D. Leng	£288 0 0	R. Woollaston & Co.	£159 0 0
Holliday & Greenwood, Ltd.	235 0 0	W. J. Howie	155 0 0
C. G. Jones	204 10 0	S. Musgrove, 90, Amersham-vale, New Cross*	152 19 0
H. Groves	168 10 0		
W. Banks	162 10 6		

Greenwich and Deptford, Creek-road (B. G. I. and J. M.).

W. Hayter & Son	£235 10 0	H. Groves	£171 0 0
C. G. Jones	231 0 0	R. Woollaston & Co, 22, Lacey-street, Bow*	165 0 0
W. J. Howie	225 0 0		
S. Musgrove	216 14 6		

Hackney, N., Oldfield-road.

H. Runham Brown	£486 0	C. Willmott & Son	£311 10
W. Silk & Son	448 10	H. Bouneau	291 2
McCormick & Sons	437 0	J. Stewart, 174, West Green-road, Tottenham*	284 10
A. Porter	387 0		
F. Bull	358 0		
Barrett & Power	349 0	Woollaston Bros.	240 0

Hackney, N., Wordsworth-road.

H. Runham Brown	£471 0 0	Patman & Fotheringham, Ltd.	£316 0 0
C. Dearing & Son	368 0 0	Barrett & Power	305 0 0
W. Silk & Son	352 0 0	A. Porter, 702, High-road, Tottenham*	304 0 0
C. Willmott & Son	335 0 0	Woollaston Bros.	265 0 0
H. Bouneau	317 17 6		

Haggerston, Hamond-square.

H. Runham Brown	£493 0 0	Marchant & Hirst	£243 0 0
W. Shurmur & Sons, Ltd.	345 0 0	Stevens Bros., 1a, Yonge-park, Seven Sisters-road*	209 0 0
H. Bouneau	317 7 6		
W. Silk & Son	306 0 0		

Islington, E, "Forster."

G. S. S. Williams & Son	£257	F. W. Harris & Co., Ltd.	£211
Patman & Fotheringham, Ltd.	230	Stevens Bros.	176
		Marchant & Hirst, 136, Highgate-road*	175

Islington, E., Pakeman-street.

G. S. S. Williams & Son	£224 0	W. Densham & Sons	£179 0
Patman & Fotheringham, Ltd.	205 0	Marchant & Hirst	175 0
F. W. Harris & Co., Ltd.	185 0	Stevens Bros., 1A, Yonge-park, Seven Sisters-road*	165 0
T. Cruwys	184 10		

St. George-in-the-East, Brewhouse-lane.

J. Haydon & Sons	£93 15	J. F. Holliday, 37, Anthony-street, Commercial-rd.*	£67 0
Vigor & Co.	89 10		

St. Pancras, W, Arlington-road.

T. Cruwys	£252 10	W. Johnson & Co., Ltd	£147 0
Patman & Fotheringham, Ltd.	189 0	Marchant & Hirst	118 0
F. W. Harris & Co., Ltd.	169 0	F. T. Chinchen & Co., Harrow-rd., Kensal-green*	114 10

Westminster, Horseferry-road.

F. G. Minter	£238	Macey & Sons, Ltd.	£203
Martin, Wells, & Co., Ltd.	225	Lathey Bros.	180
J. R. Sims	217	Holloway Bros. (London) Ltd., 38, South Audley-street*	178
G. Foxley	208		

Whitechapel, Old Castle-street.

H. Runham Brown	£572 0	J. F. Holliday	£234 0
R. Woollaston & Co.	260 0	Vigor & Co.	233 0
G. H. Rowe	255 0	J. Haydon & Sons, Teesdale-street, Hackney-road*	212 10

MALVERN.—For erecting the public library, for the Urban District Council. Mr. H. A. Crouch, architect, 12, Gray's Inn-square, London, W.C. Quantities by Mr. G. Webster, 10, Gray's Inn-square, London, W.C.:—

A. J. Colborne	£8,420 0 0	J. Lovell	£7,321 0 0
J. A. Meredith	8,395 8 9	Tilt Bros.	7,226 0 0
Bastow, Stephen, & Co.	7,712 0 0	H. Smith	7,048 0 0
Bromage & Evans	7,653 16 0	Parnall & Sons	6,943 15 0
C. Griffiths	7,627 0 0	J. Dallow & Sons	6,916 0 0
A. Holloway	7,584 10 0	W. Bowers & Son	6,848 0 0
T. Broad, Ltd.	7,511 0 4	J. Herbert, Wolverhampton*	6,610 0 0
J. & A. Brazier	7,411 0 0		
Long & Sons	7,332 0 0		

MERTHYR (Wales).—For erecting two shops and dwelling appurtenances in High-street, for the Trustees of Pontmorlais Chapel :—

J. Jenkins	£1,951	M. Warlow, Warlow-street, Merthyr*	£1,740
S. Hawkins	1,750	E. Williams	1,690
Jones & Davies ..	1,750	Jones	1,510
J. Williams	1,745	E. Sullivan	1,126

MITCHAM (Surrey).—For clearing site and erecting a relief station and officer's house, etc., Cranmer-road, for the Guardians of Croydon Union. Messrs. Chart, Sons, & Reading, architects :—

Mile & Upson..	£1,110 0	H. Lumsden ..	£982 0
Ferguson & Co.	1,100 0	G. E. Everett..	973 10
Johnson & Co., Ltd.	1,098 0	E. Pearce	973 0
Bullard & Co...	1,097 0	Sansom & Bishop	970 0
Martin, Wells, & Co.	1,090 0	W. Gowman ..	965 0
Smith & Sons..	1,070 0	E. J. Burnard..	958 0
R. Jones & Son	1,054 0	Truett & Steel	955 0
Grace & Marsh	1,020 0	Sedgewick Bros.	949 0
C. E. Haydon..	1,019 10	H. Bacon.....	919 0
D. Steward & Sons	1,018 10	Powell & Pitt..	910 0
D. Waller	998 0	Burgess & Sons	890 0
Foster Bros. ..	993 0	C. Sayers, High-street, Mitcham*	887 0

RICHMOND (Surrey).—For 875 yds. of 9-in. sewers along Mortlake-road, North Sheen, for the Town Council. Mr. J. H. Brierley, Borough Surveyor, Town Hall, Richmond :—

Ballaras, Ltd.	£1,164 12 0	Benham & Co.	£784 0 8
G. Wimpey & Co.	874 17 3	Nowell & Co.	757 8 8
C. W. Killingback & Co.	864 5 6	T. Free & Sons	731 6 9
J. Jackson ..	855 10 8	F. Hoffmann ..	724 14 2
E. Tabor	807 2 7	Kavanagh & Co., Surbiton* ..	711 13 6
T. Watson ..	799 2 4	J. Howell	656 6 0

SOUTH SHIELDS.—For new operating theatre, for the Incham Infirmary, Westoe, South Shields. Quantities by the architect, Mr. Fred Rennoldson, South Shields :—

Sheriff & Sons	£2,164 2 10	A. Ross....	£2,092 9 6
J. Carruthers	2,145 5 2	R. Harper..	2,076 7 3
W. Wilson & Sons	2,144 6 10	W. Allison..	2,020 0 0
J. C. Nichol	2,141 8 0	T. Banks ..	1,981 15 10
J. Young ..	2,128 17 0	T. W. Turner & Co.....	1,961 12 5
W. J. Robertson & Sons	2,100 0 0	J. Christie*	1,900 5 0

THATCHAM.—For erecting a bridge, 54 ft. by 18 ft., over the river Kennet at Thatcham, near Newbury, for the Berkshire County Council. Mr. J. Morris, County Surveyor. Broadway-buildings, Reading. Quantities by Mr. Morris :—

A. Findlay..	£1,669 3 0	G. H. Tucker	£884 0 0
Cleveland Bridge Co.	1,231 11 6	Woods & Moir	880 0 0
R. Moreland & Son....	1,198 0 0	T. James ..	860 0 0
A. Thorne ..	1,146 0 0	W. A. Baker & Co.....	850 0 0
A. D. Dawnay.....	1,064 16 7	G. Thompson & Co.	850 0 0
Fulham Steel Works ..	1,000 0 0	M. E. Fitt..	846 0 0
E. C. & J. Keay	912 0 0	A. J. Ellis..	824 18 0
E. Finch & Co.....	894 12 10	J. O. Brettell	779 0 0
J. Westwood	890 6 3	Needham & Lowe	771 12 0
J. Coulson, Stokes, & Co.....	890 0 0	C. W. Cox & Sons, Maidenhead*....	746 0 0

TRURO.—For sea-wall works, etc., for the River Committee. Mr. Measham Lea, City Surveyor, Truro :—

G. Lawson	£15,687 0 0	W. E. Blake	£4,920 0 0
Tilbury Dredging & Contracting Co.	6,620 13 11	T. Rickeard	4,882 6 0
E. H. Page	5,919 9 0	Leggott & Speight ..	4,771 3 0
Pethick Bros.	5,619 0 0	J. Colliver, Truro* ..	4,255 1 3
		Ellacott & Sons	3,495 14 0

WELLS.—For 9-in. bore, 350 ft. deep, near Wells, for the Committee of Somerset and Bath Asylum. Mr. W. Phelps, C E., Croscombe, Wells :—

		Steel tubing per ft. s. d.	s. d.
W. Brown & Son	£732 10 ..	12 0‡	
Cheeld & Co.....	637 10 ..	15	0 to 22 6
T. Trigg.....	600 0 ..		—
Duke & Ockenden	587 10 ..	7 6	
C. Chapman & Sons....	450 0 ..	14	0 to 19 0
E. Timmins & Son	450 0 ..	10	0 to 13 6‡
J. Henderson & Son ..	437 10 ..	10 6	
T. Matthews	400 0 ..	17	0 to 22 0‡
A. C. Potter & Co.	320 0 ..	6 0	
W. Matthews & Co.....	310 0 ..	7	6 to 8 6
H. Brown & Co.	290 0 ..	13 6	
C. Isler & Co.	290 0 ..	12 0	
British American Well Works	218 15 ..	5 8§	

‡ ⅝ in. thick. § ¼ in. thick.

WICKLOW.—For sewerage works in Bridge-street, Wentworth-place, and South Quay, for the Urban District Council. Mr. John Pansing, Town Surveyor, Wicklow :—

A. McGowan ..	£740 0 0	M. Reilly	£625 0 0
J. Plunkett....	710 0 0	W. Rose, Fitzwilliam-sq., Wicklow* ..	623 0 0
D. Clarke	650 5 6		
W. Carroll	630 0 0		
J. Kelly	627 0 0		

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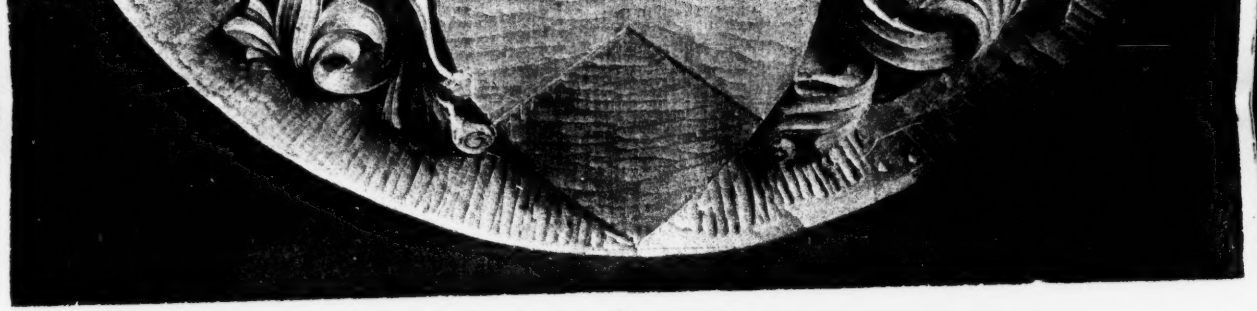

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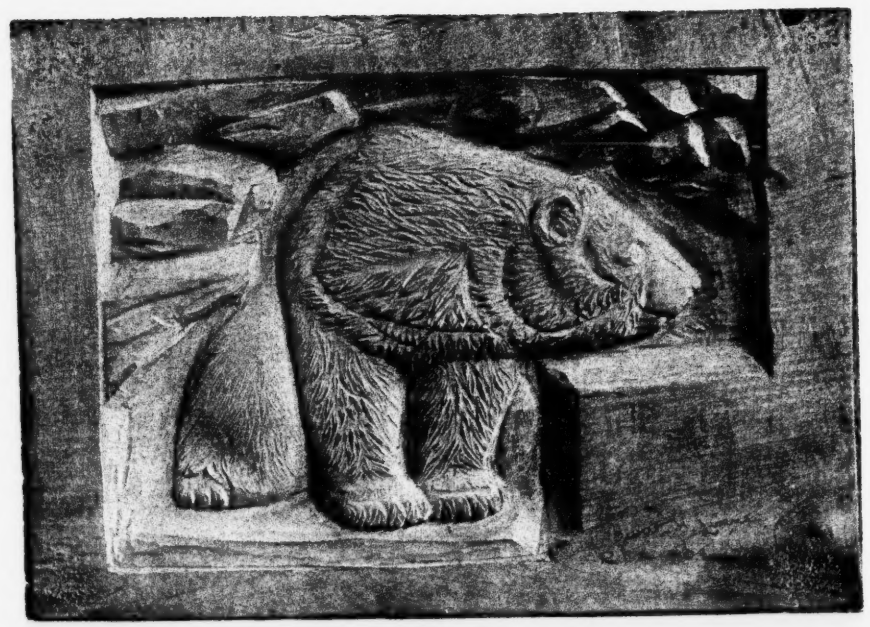

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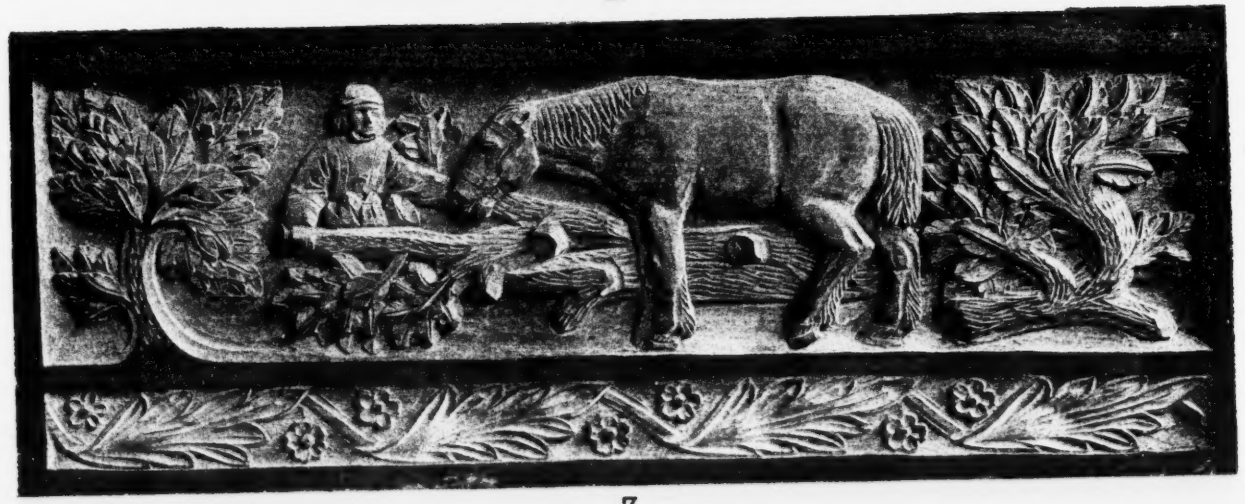

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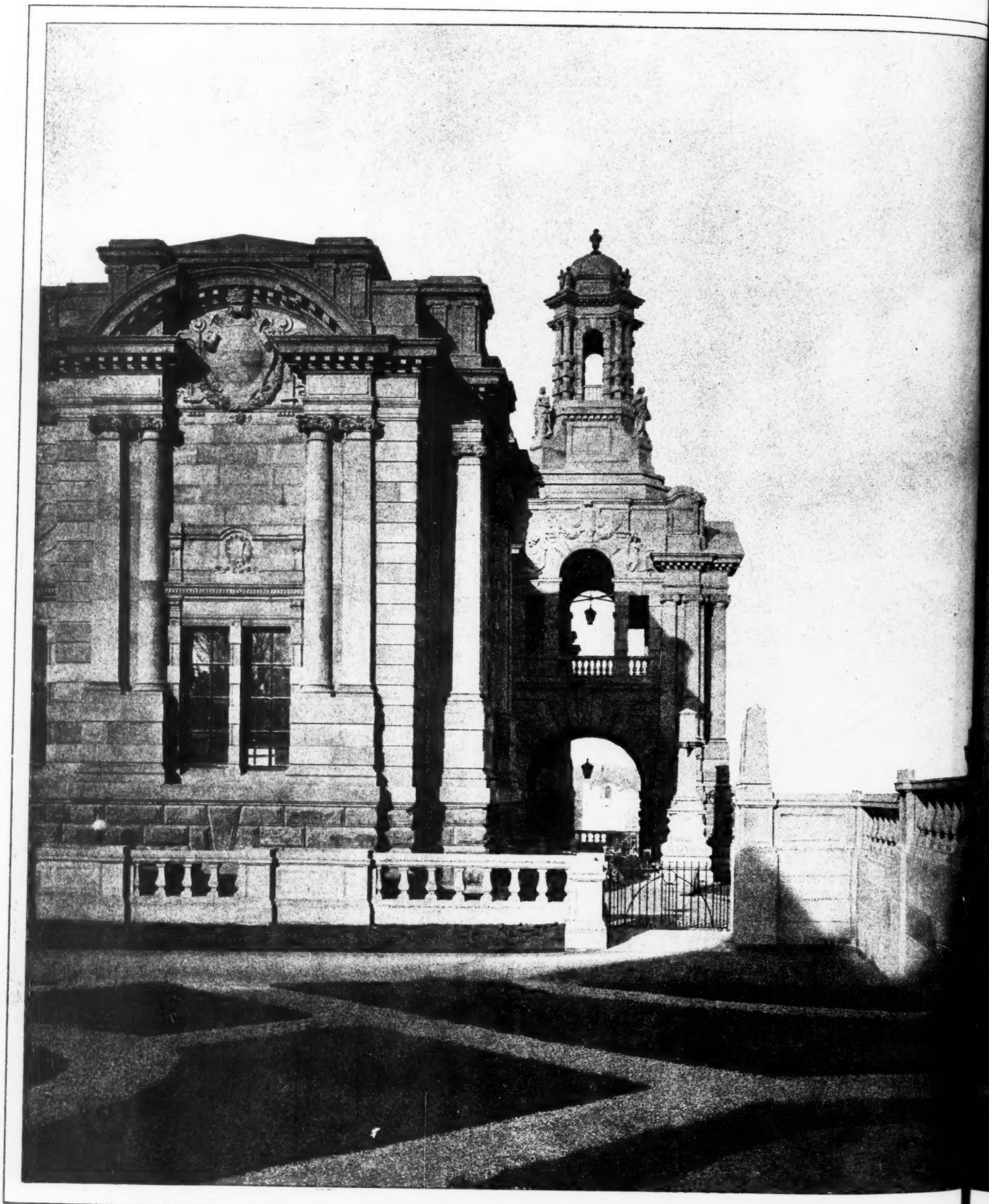

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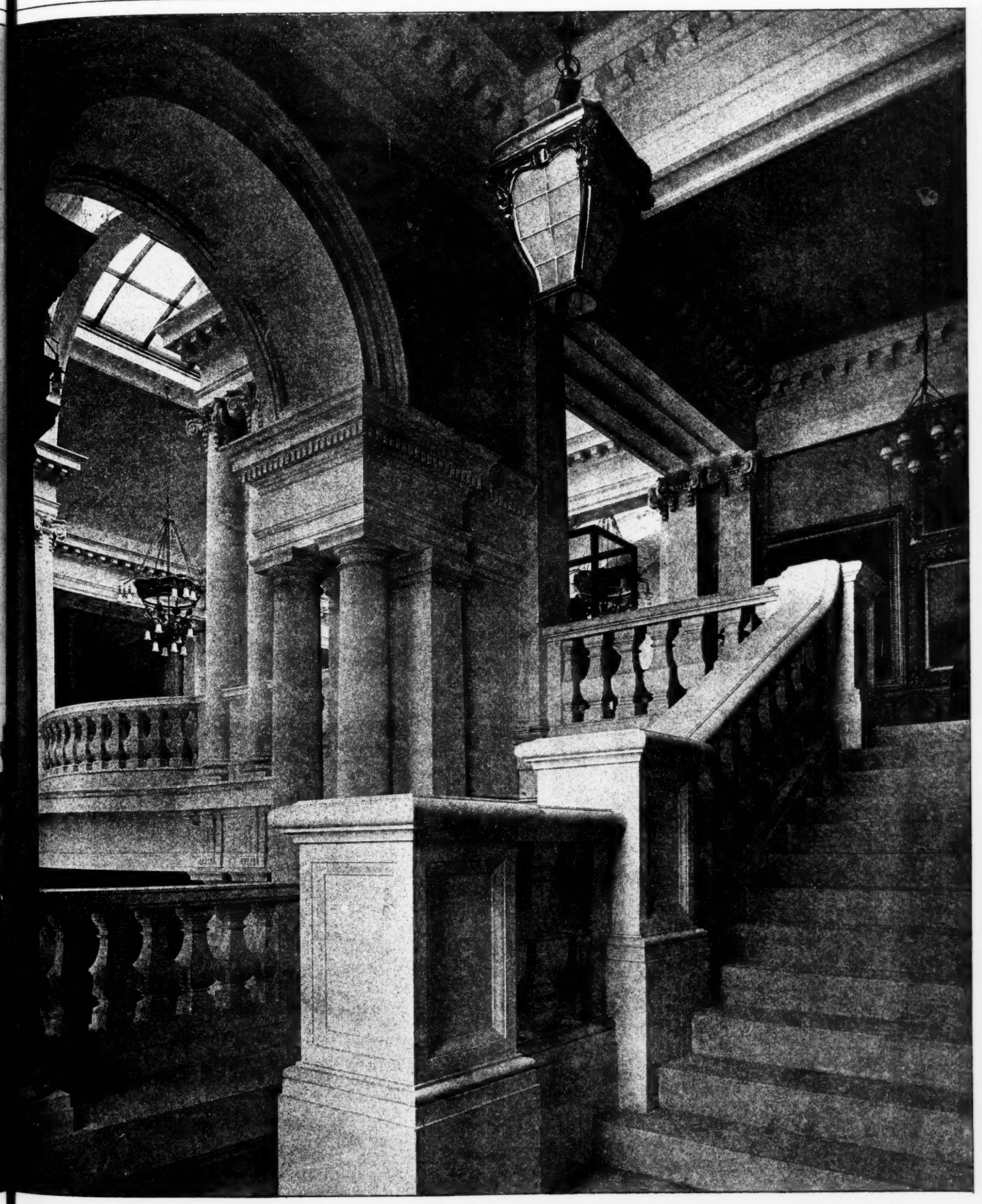

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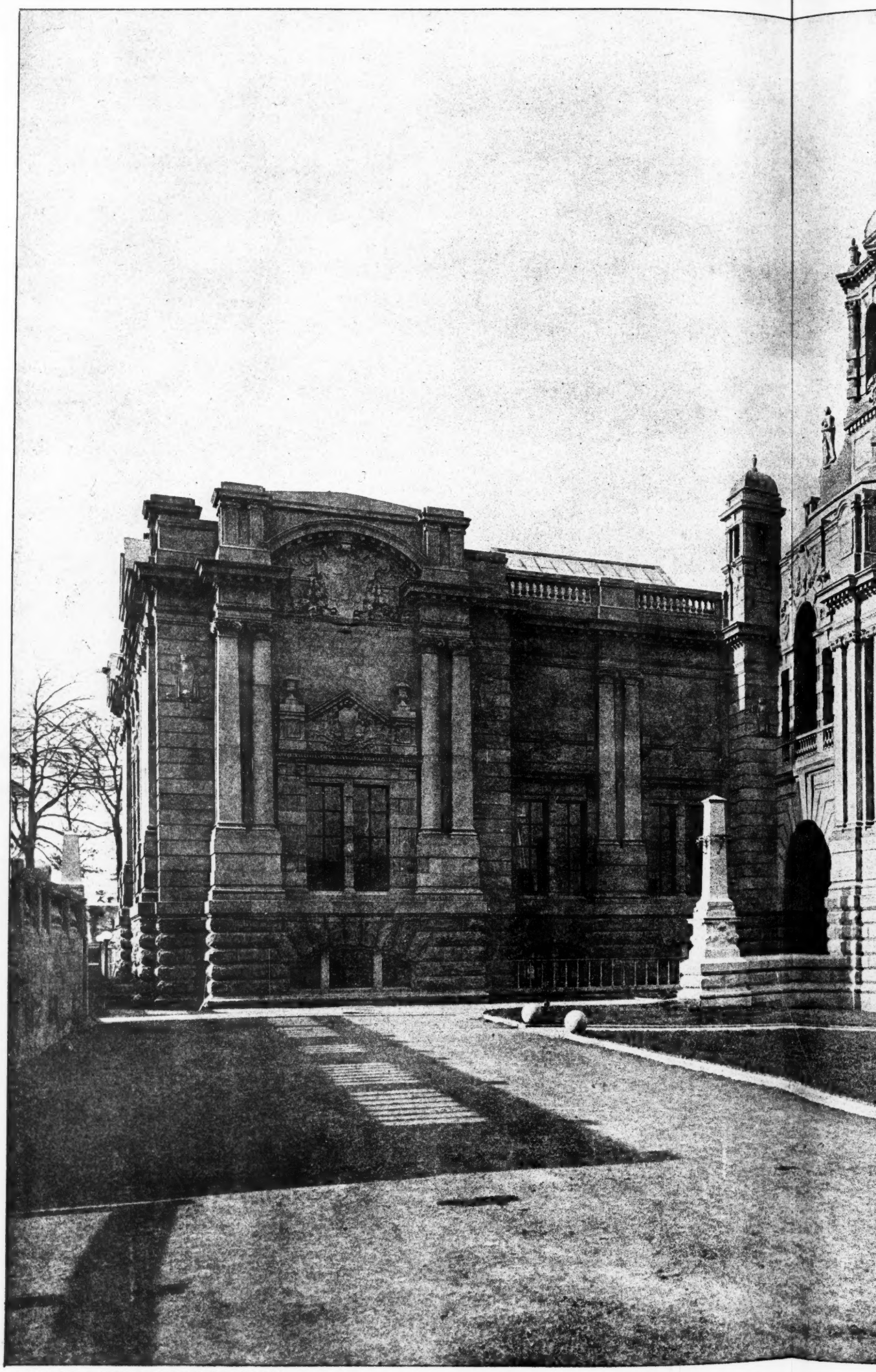
VIEW OF STAIRCASE.

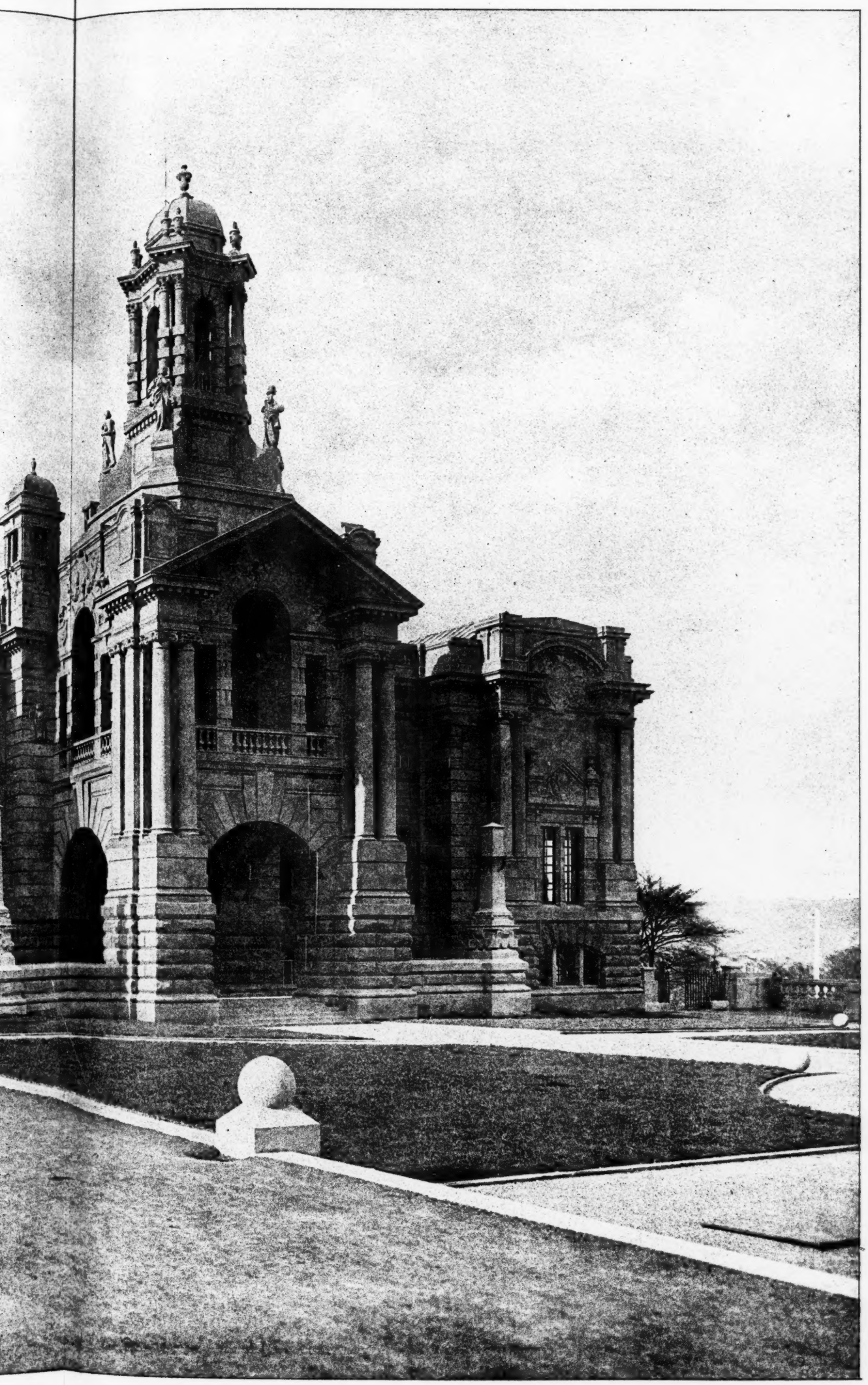
, BRADFO ESSRS. J. W. SIMPSON & E. M. ALLEN, ARCHITECTS.



PHOTOGRAPHED BY BEDFORD LEMERE & Co 147, STRAND, W.C.

CARTWRIGHT MEMORIAL HALL, BRADFORD.—MESSRS. J. W

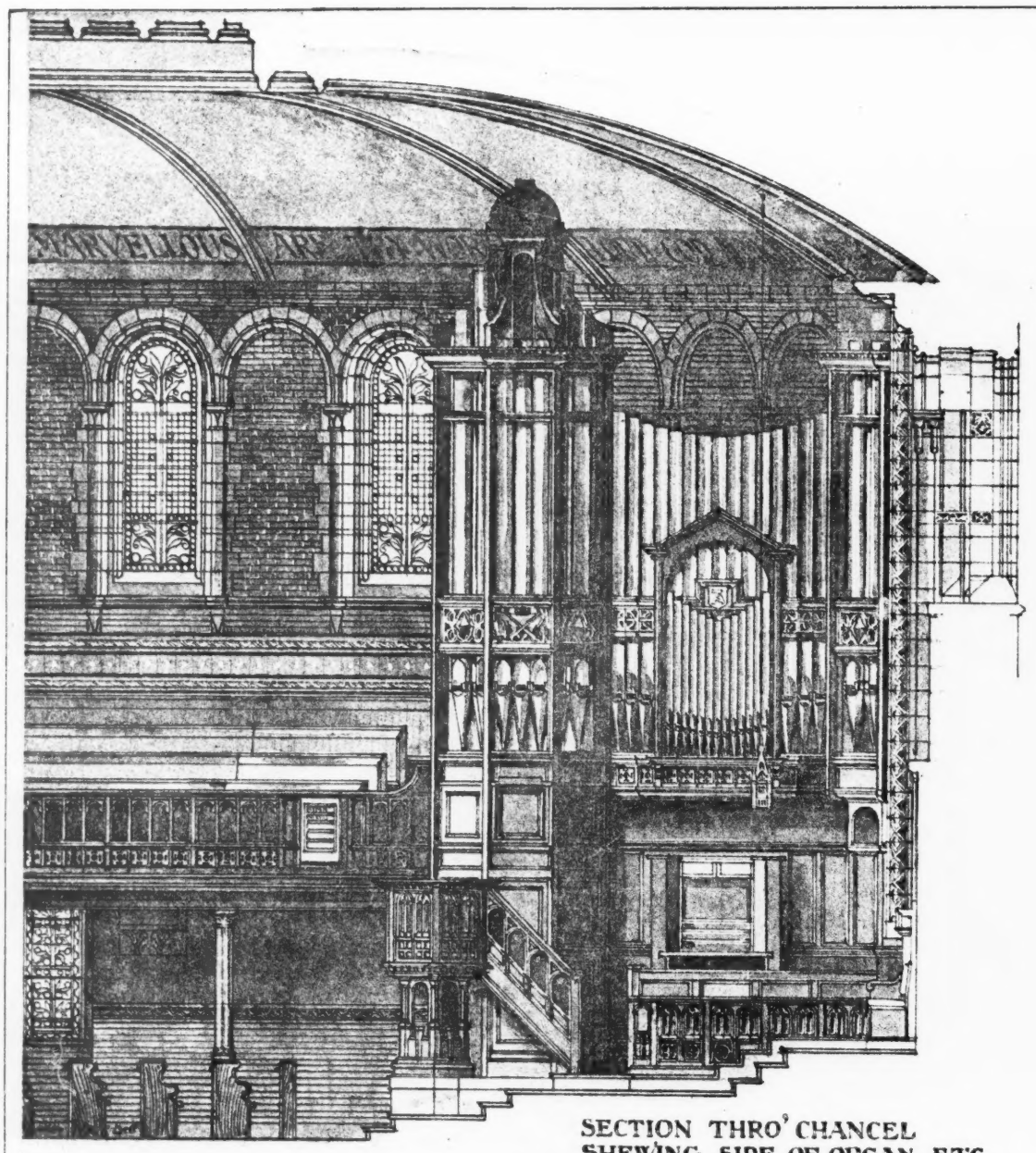
GENERAL VIEW.



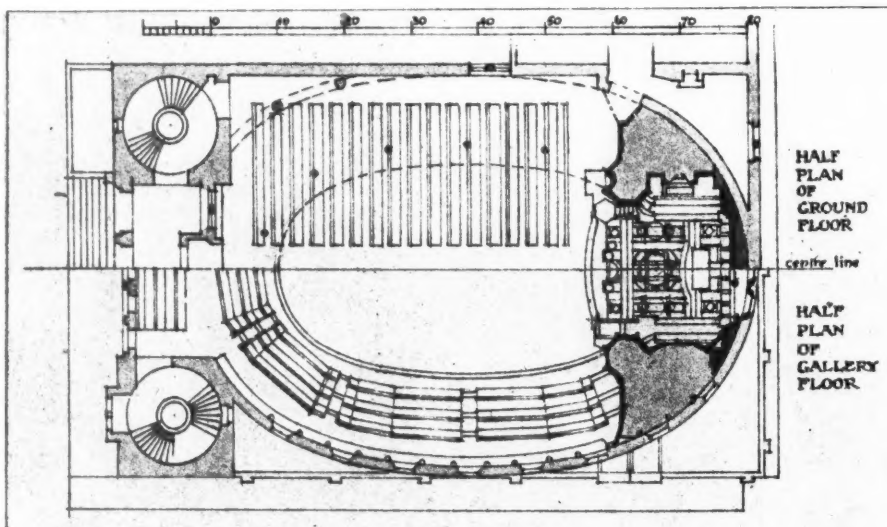
"INK-PHOTO," SPRAGUE & Co LTD 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

ADFORD.—MESSRS. J. W. SIMPSON & E. M. ALLEN, ARCHITECTS.

GENERAL VIEW.



SECTION THRO' CHANCEL
SHEWING SIDE OF ORGAN, ETC.



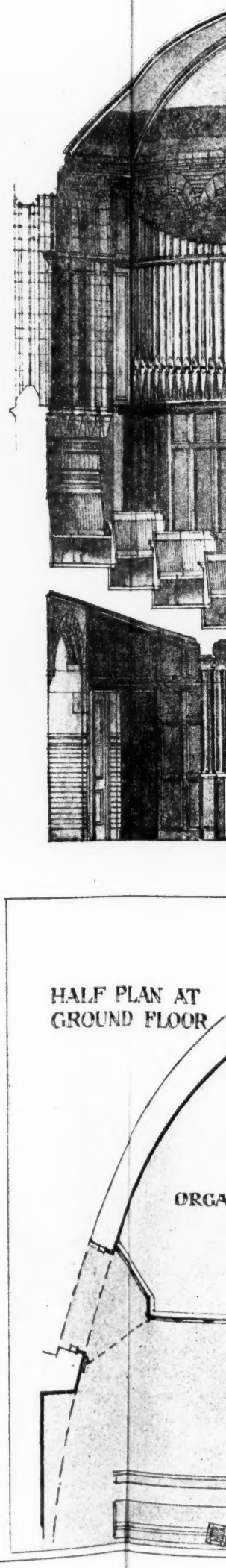
KINGS WEIGH HOUSE CHURCH

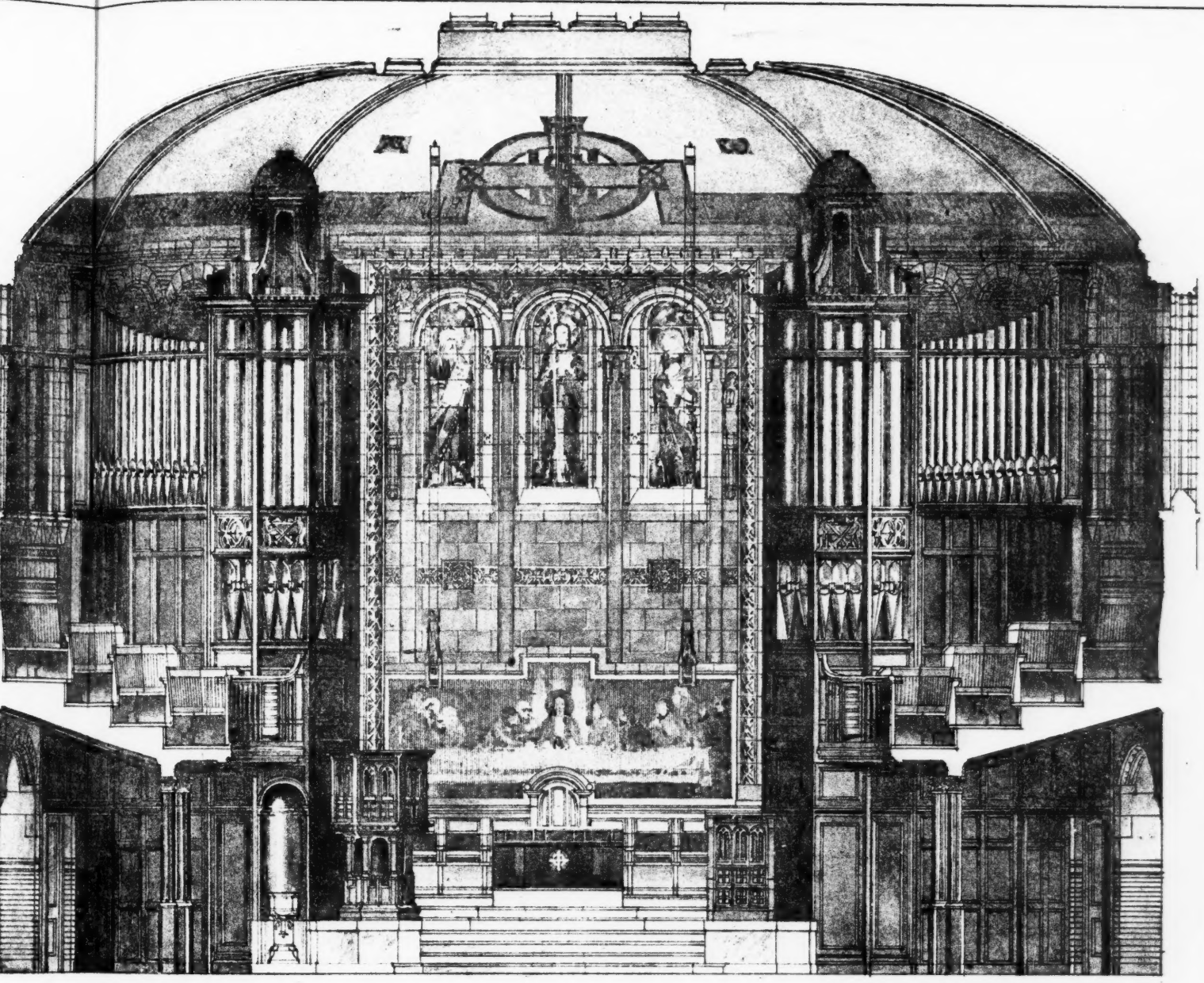
DUKE STREET, GROSVENOR SQUARE · W ·

NEW ORGAN AND CHANCEL

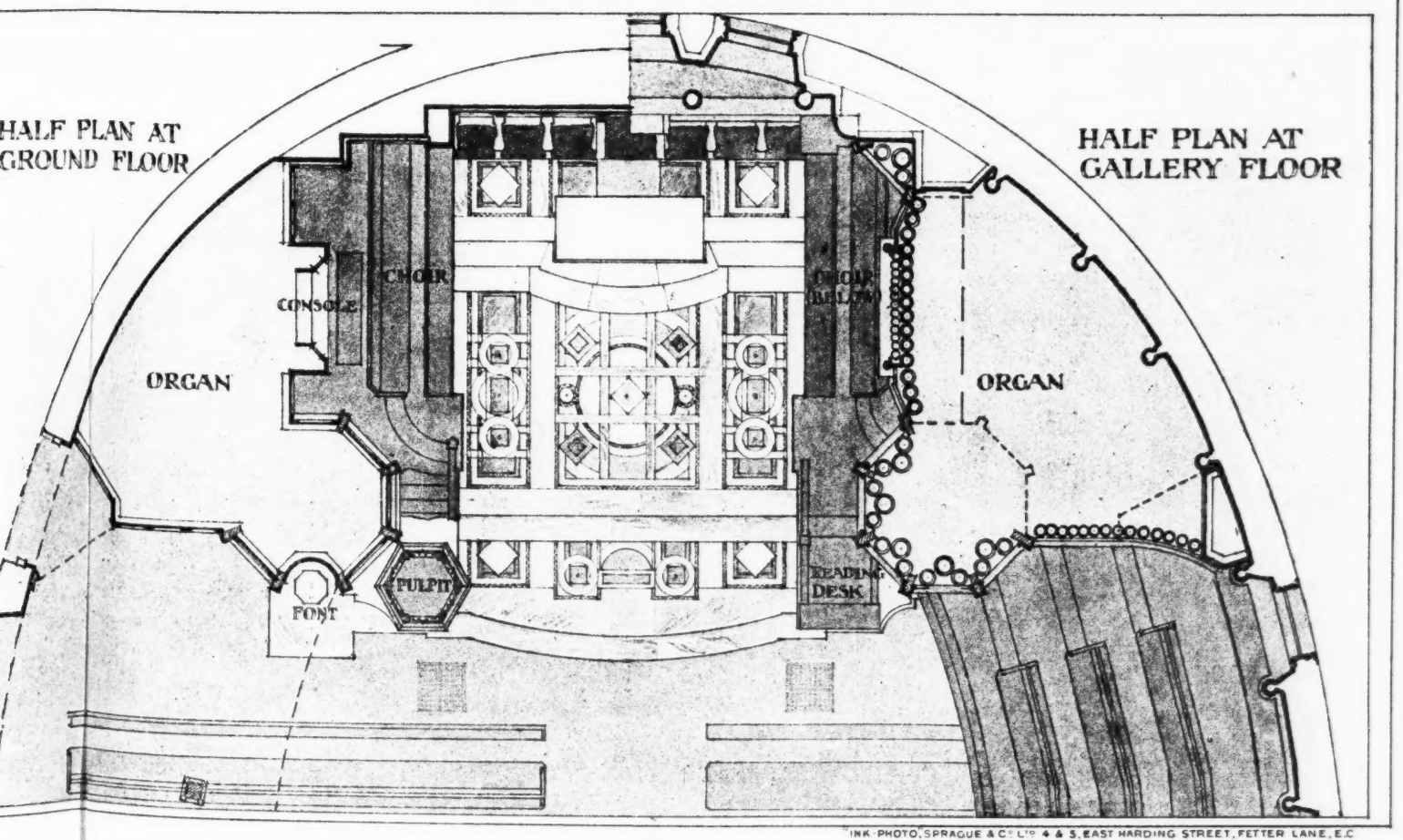
Arthur J. Burnett A.R.S.A.
Architect.

STAINED GLASS, (EXECUTED), AND TAPESTRY, DESIGNED BY R. ANNING BELL





ELEVATION TO CHURCH



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